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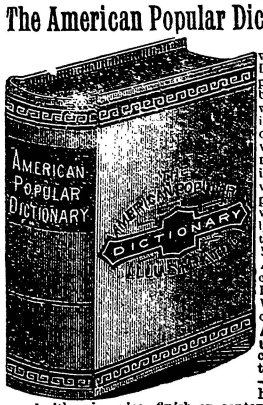

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1882.

We most cordially wish all our readers the best compliments of the season. We venture to hope that the New Year of 1882 will find them more earnest, and enthusiastic teachers than they were at the beginning of 1881. We trust that most of them have been re-engaged at higher salaries. It is one of the functions of the CANADA SCHOOL JOURNAL to make them worthy to receive higher salaries, by fitting them more fully to perform their important duties. Any teacher whose position is worse this year than it was last year should look carefully and honestly through his own record, and take stock of his own efforts to improve himself, before he blames trustees, or rails at fate.

We part from 1881 with the most kindly feelings. He has been unusually kind and generous towards us. The subscription list of the JOURNAL has been increased even beyond our most sanguine expectations. We have become more widely acquainted with the teachers and inspectors throughout the country, and there is no flattery in the statement that the more we know of them, the more we respect them for their intelligent devotion to their work. We heartily thank our large circle of friends for their assistance during the year, in extending our circulation, in contributing valuable articles, in communicating items of educational news, and in making suggestions for the better adaptation of the JOURNAL to the needs of the teachers, whose best interests it is our aim to advance. For the future we promise to be all of good that we have been in the past, and to still strive to make every improvement which we believe will make the JOURNAL more useful to the great army of teachers in helping them to do their daily work with less strain on themselves and with more profit to their pupils. We request every teacher in Canada to become a member of our staff by sending brief statements of educational news from his vicinity, in a form in which they may be handed to the printer. We will send special reporters as far as possible to conventions and other educational gatherings if duly notified. If we are unable to do so we request the proper officer to send us an abstract of the work done.

We repeat in closing the wish that each one of our readers may receive all the best blessings of Christmas, and all the brightest hopes of New Years; and we sincerely hope that the CANADA SCHOOL JOURNAL may largely aid in making their next Christmas and New Year's Day more full of peace and promise than any that have preceded them.

THE TEACHER'S RESPONSIBILITY.

—We commend to our readers the following extract from an educational address of that great statesman and Christian, the eloquent and philosophic Guizot. No nobler or more inspiring words, we are sure, could greet the eyes of the teachers of Canada as they open the first number of the CANADA SCHOOL JOURNAL for 1882:

"All the provisions hitherto described would be of none effect, if we took no pains to procure for the public school thus constituted, an able master, one worthy of the high vocation of instructing the people. . . . . Humble as the career of a schoolmaster may seem to be, and though often doomed to pass his whole existence within the sphere of a small community, his labors are, nevertheless, felt throughout society at large, and his profession is as necessary and important as that of any other public functionary. It is not for any particular or merely local interest, that the law demands that every man should acquire, if possible, the knowledge which is indispensable in social life, and without which, intelligence languishes and degenerates; it is for the STATE ITSELF and the public interest; it is because liberty is certain and steadfast only among people enlightened to listen, in every circumstance, to the voice of reason. PUBLIC ELEMENTARY INSTRUCTION IS ONE OF THE GUARANTEES OF ORDER AND SOCIAL STABILITY. Doomed to pass his life in discharging the duties of a somewhat monotonous vocation, often even in struggling with the injustice or the ingratitude of ignorance, the teacher would often repine and perhaps sink under his afflictions, did he not draw strength and courage from another and higher source than that of immediate and mere personal interest. A deep sense of the moral importance of his duties must support and encourage him. He exhausts his strength in sacrifices which are scarcely noticed by those who reap their benefit; he labors for his fellow-beings and looks for his reward to God. . . . . His first duty is towards the children confided to his care. The teacher is summoned by the parent to share his authority, this authority he must exercise with the same vigilance and almost the same affection. Not only is the health of the children confided to his care, but the cultivation of their affections and intelligence depends almost entirely on him. In confiding a child to your care, every family expects that, as much as lieth in you, you will send him back an honest

man: the country, a good citizen. Bestowing due care on the understanding, neglect not the moral qualities of your pupils. Unceasingly endeavor to propagate and establish those imperishable principles of morality and reason, without which universal order is in danger; and sow in the heart of the young those seeds of virtue and honor which riper years and maturer passions will never destroy. Faith in Divine Providence, the sacredness of duty, submission to parental authority, the respect due to the laws, to the king, and the rights of every one; such are the sentiments which the true teacher will aim to implant and develop."

UPPER CANADA COLLEGE.

During the past month we have availed ourselves of our exceptionally good opportunities for becoming acquainted with the state of feeling throughout the country regarding Upper Canada College, as there is every probability that it will be one of the most important subjects submitted before the House during the coming Session.

The advocates of the continued existence of Upper Canada College urge in its favor: (1) That it is necessary as a preparatory school for young men who intend to take a University course; (2) That there should be a State Institution for the benefit of those who wish to send their sons from home to receive their education; (3) That it serves as a Collegiate Institute for a part of the City of Toronto.

Those who favor the discontinuance of the School reply to the above as follows:

1. It is no longer necessary as a preparatory school for University men, as the Collegiate Institutes and High Schools throughout the country are doing better work than Upper Canada College in training young men for the Toronto and other Universities. This is now an established fact.

2. There should be no attempt made to found or continue in existence State Educational Institutions to meet the special cases of individuals. It may often be advisable for a man to send his son from home to pursue his High School studies, but there are over one hundred High Schools to either of which he may send him, so that Upper Canada College need not be perpetuated for this special purpose. But he should have some one in connection with the school to superintend his conduct outside of the class-room, to see that he prepares his lessons properly, avoids bad company, etc. Admitted, but no one has a right to expect the State to assume the duties of a parent towards his children until they become orphans. Then it may do so by providing Industrial Schools. The State provides education, not parental supervision for those children who have parents. For those who think they can not, in the best interests of their children, send them to a High School at home or at a distance, there are several institutions of which Pickering College may be taken as a model, which perform both the functions of teacher and parent so far as they can be combined. A parent may in this respect obtain in private institutions, all that Upper Canada College with its enormous State aid has to offer, and at quite as good rates. We have no Canadian aristocracy, and those who desire exclusiveness for their children should pay for it. No one will interfere with their right to do so.

3. The City of Toronto has no right whatever to have a portion of its legitimate High School expenditure paid by the province at large. There is no reason why Toronto should be so aided that might not be urged in favor of every town and village in the country. Toronto would likely have to provide more High School accommodation if Upper Canada College ceased to exist. Let Toronto do so, as any other city or town has to do. She is increasing so rapidly that the time will probably soon arrive when the High School Board will have to open an additional school for the accommodation of those residing in the west end. This will be brought about all the sooner if the proposed extension of her limits is carried out.

It is sometimes said that if the staff of teachers was improved the College would be more prosperous. This may be quite true. We have no doubt that the managers of a private institution, or the trustees of an ordinary High School would have made some changes long before this under similar circumstances, but this does not in any way affect the question at issue, viz.: whether the country should continue an expenditure of nearly $30,000 per annum to do two kinds of work, one of which the State has no right to do, while the other is better done by the regular schools which form a part of our educational system?

What should be done with the money invested in Upper Canada College, is a question that must be taken into consideration, when its discontinuance is discussed. The valuable property which it occupies, coupled with its endowment, would produce an annual income of nearly $30,000. Some say this should be distributed to the High Schools. We think the money might be more profitably spent, and would renew the suggestion first made in the JOURNAL, that a portion of the money derived from the consolidation of its assets be spent in erecting near the University a college for the higher education of women, when the proper time arrives, and in endowing it. The erection of such a college is in our opinion merely a question of time, and if the time has not already come the money could be funded until the necessity for the college is more manifest. The balance might very properly be appropriated for the endowment of two chairs in the Toronto University. Is it not time that those University men who intend to be the masters in Collegiate Institutes and High Schools should receive a special course of training in Education during their University course? The teachers of the future are receiving their education in the High Schools; how essential it is therefore that the Principals in them should understand the principles on which the practice of education is based. Theoretical training would not of course be sufficient, but the practical training could easily be provided. There is an opportunity for the Government to do immense good to the best educational interests of the country, by imitating the example of some of the universities in Britain and the United States, by establishing a Chair of Education in our University. It is well known

to those connected with the University that the able and indefatigable President, Dr. Wilson, has in addition to the arduous duties of his office to do the work usually performed by two professors. He should be relieved of a portion of his work, and either History or Literature assigned to an additional professor.

GLEANINGS FROM THE COUNTY CONVENTIONS.

READING is a very important subject. More time is spent in teaching it in proportion to the progress made than in teaching any other subject. We have frequently urged the necessity for improved methods of teaching this subject in elementary classes. We are delighted to notice how frequently the conventions discuss this question, but it is a cause for regret that the subject of reading in the advanced classes is not more often considered. When the able and observant Chief Superintendent of Manitoba reached Ontario recently to study its system of teaching and of training teachers, one of the first questions he asked, was "How is it that reading is not taught in the schools of Ontario." Enquiry from him brought out the fact, that many of the teachers who had gone from Ontario to Manitoba, had informed the Examining Board there, in explanation of the fact that they were such poor readers, that they did not receive a single lesson in reading while at the High School. From enquires we have made we are ashamed to confess that they told the truth. The teachers say "they have not time!" Then time should be taken from other less important subjects. The Examiners who conduct the professional examinations in Ontario agree with Rev. Mr. Pinkham that the great majority of those who leave our Normal Schools cannot read well. We hope they will let it be known that they regard it as a "plucking subject."

We were much struck by some remarks made at the last convention for the County of Durham by Mr. Oliver, Headmaster of Bowmanville High School, concerning this subject. He held that the critical study of the thirteen lessons in the Fourth Book by candidates for admission to High Schools had a very bad effect on the reading; and in proof of his statement, he called attention to the fact that very many children read much better while in the Second or Third Reader, than they do after they have read for some time in the Fourth.

We believe that there is much truth in Mr. Oliver's remarks, and unfortunately the pupils receive no compensation in literary training at all adequate to the evil effects on their reading. Not one of the thirteen selections is taken from the writings of a standard English author.

In connection with the preceding paragraph, we take pleasure in recording our hearty endorsation of the efforts made by Miss Catharine Lewis at so many of the teachers' conventions to improve the style of reading and the method of teaching it, both to primary and advanced classes. She is a most accomplished reader, and a very thorough and practical teacher. She has been most cordially received by the conventions which she has attended, both as a public reader, and a teacher of elocution.

Miss Lewis has recently been appointed teacher of elocution in the Toronto City Model School. We wish that more attention could be given to teaching how to read in all County Model Schools.

It is very gratifying to notice that the three "neglected subjects," Drawing, Music, Drill and Calisthenics, are receiving so much attention at the conventions in all parts of the province. They have already been dealt with very largely in the Practical Department of the JOURNAL, and we intend to continue to supply our readers with articles concerning them from practical teachers.

Speaking of the value of drill as a disciplinary agency in schools, Mr. J. R. Miller, the efficient Inspector of Schools in Huron County, recently said, "he believed he had the most uniformly well-behaved schools in his county to be found in any county in the province, and that both he and his teachers agreed that the revolution which had been wrought in the conduct of the pupils throughout the county was mainly due to the practice of drill in the schools." Mr. Miller himself instructs the teachers in training at the County Model School how to teach this important subject.

Complaint was made before the Library Committee of the Brant Co. Teachers' Association at the late convention, that the library was not made use of by the majority of the teachers. Some of the members were ignorant of its existence; many, through distance, could not avail themselves of it, but would prefer to receive the CANADA SCHOOL JOURNAL or some other good educational paper instead. A free library is a most valuable possession for teachers to have, but under existing arrangements it is almost useless. The theory is good but the practice is ineffectual, for several reasons—chiefly because teachers in country sections cannot, without much inconvenience, get the books they require, and when they do get them, find a difficulty in exchanging them. A large proportion of teachers never trouble the librarian, and are so apathetic about the affairs of the Association that they do not care to become paying members. In some counties every member who pays a certain fee receives a copy of the SCHOOL JOURNAL monthly, and enjoys all the privileges of membership. In these counties the fee is given cheerfully, and membership is desirable, because teachers—like other shrewd people—desire some tangible return for the money they pay, and the bonus is always satisfactory when it comes to their homes monthly in the shape of the JOURNAL.

PHYSICAL EDUCATION.

The excellent articles on "The Co-education of Mind and Body," by Dr. McLaughlin, M.P.P., and "Hygiene," by Inspector Fotheringham, are typical of a large number of a similar kind that have recently been presented to teachers' conventions. We gladly present them to our readers, with the earnest hope that they will be carefully read, and that the wise suggestions they contain may be very extensively put in practice. We would also direct attention to the article in the Practical Department containg directions concerning the proper positions of the bodies of the pupils while engaged at school duties or exercises. This

part of physical education has been long neglected, and Inspectors would do well to see that the teachers in their districts pay strict attention to all the details, which go to make school life less destructive of vital energy, and less injurious to the physical organization of pupils generally.

—During a recent visit to Lindsay, we had the pleasure of gaining a knowledge of its scholastic institutions, and we came away with the conviction that foreigners who wished to get in a single day a view of well-conducted Canadian schools of all grades, Public, High, Separate, and Private, should be sent to Lindsay. Education is the one public work which its citizens seem to have united in promoting, and the result is that from being one of the most turbulent towns in the province as it once was, it is now peaceable and prosperous.

—Much of the active interest shown by all classes in Lindsay in the cause of popular education can be directly traced to one man, Father Stafford. When appointed to his present charge, he found educational affairs at a very low ebb. He at once began to direct the attention of the people both in the town and its vicinity to the necessity for giving their children a good education. By a long course of encouragement and expostulation, which would have wearied the patience of a less persistent man, he at length succeeded in leading all classes to exhibit a proper degree of enthusiasm in regard to their schools. He taught the parents to respect the rights of their children, and convinced them that a good brick school-house was the best investment for the money they intended to devote to the welfare of their sons and daughters. They have found that it pays to take a deep interest in education, and there is no portion of Ontario where more attention is paid to the subject than in Lindsay and the portion of Father Stafford's parish outside of it. He still gives a great deal of attention to the subject, and has lately returned from a tour in Europe, where he made a special study of recent improvements in the systems and methods of teaching. We were pleased to find him so hearty and vigorous after his holiday trip, and hope he may long be spared to be the educational as well as the spiritual guide of his people.

—The closing exercises of Hellmuth Ladies' College were extremely interesting and attractive. A well-arranged and creditably executed concert brought together a large party of friends, who greatly enjoyed the annual treat. At the conclusion of the concert, the Bishop of Huron presented the Governor-General's silver medal to Miss E. Roberts, for general proficiency, and a diploma to Miss A. Seaborne. The teaching staff of the College and the pupils availed of the occasion to present the Lady Principal, Miss Clinton, with an address, which was read by Rev. G. O. Troop, and to which His Lordship the Bishop responded.

The Lindsay Public Schools form the Model School for training the teachers of Victoria County. From what we were able to see of them, we judge that young teachers would be able to learn much that would direct and inspire them in the performance of their work from Mr. McFaul and his able associate teachers. While no part of the programme of school-work is neglected, the strongest special features of the School seem to be the excellence of the drawing, penmanship, and primary reading, and the attention very properly paid to school drill. It is a pity that on account of heavy outlay in other departments of school expenditure, the School Board has this year reduced the salaries of some of their teachers. We hope the reduction may be only for a short time.

The most rapid development that has been made by any of the Lindsay schools has taken place in its High School during the time that Mr. W. E. Tilley has been its Headmaster. It is expected that the school will be recognized as a Collegiate Institute at the beginning of next year. There are already five teachers employed in the school. The Trustees are anxious to enlarge the High School next year, but they find themselves already face to face with the progress-throttling 29th Clause Let us hope that it may be removed from the Statute Book before the building season opens in the spring.

—A large assemblage met at Alma College last month to witness the inauguration of the Faculty. Bishop Carman took the chair at 8 o'clock, and near him were Judge Hughes, Registrar McLachlin, Colin Macdougall, Esq., Revs. A. E. Griffith and W. G. Brown, members of the Board of Management. After the declaration by His Lordship, the Registrar presented Principal Austin as President of the institution; Rev. R. J. Warner, B.A., Professor of Modern Languages and English Literature; Miss Maggie Baker, perceptress; Mrs. Margaret Capsey, governess, and assistant in English studies; Miss S. E. Sisk, assistant in instrumental music; Prof. F. M. Bell Smith, professor of painting, drawing, and elocution; Miss E. Gibbord, teacher of fancy work; Miss A. Brotherhood, assistant in painting and academic teacher. The members of the faculty having taken the usual obligation, the Bishop invoked the Divine blessing on the institution, after which Principal Austin gave an impressive lecture on "The Higher Christian Education of Women: its Mission and Methods." The Rev. A. E. Griffith pronounced the benediction, which concluded the proceedings.

—Mr. C. L. Crassweller, one of the Assistant Masters of the Goderich High School and a third year Undergraduate of the University of Toronto, has been appointed, out of a large number of applicants, to the Commercial Mastership of Pickering College. Mr. Crassweller's record as a student is a brilliant one—Second Class A. Dec, 1878 with 79 marks out of a possible 80 in Bookkeeping, a First Class in Mathematics and the General Proficiency scholarship at the Senior Matriculation Examination in 1881. This shows good work for one who was teaching nearly all the time. At the Second Year Examination he also won the Second Proficiency Scholarship. As a teacher Mr. Crassweller's success has been equally pronounced.

—We are pleased to observe that Mr. A. L. Parker's high merits and ability have been recognized by the educational authorities and that he has been appointed to the Inspectorship of Algoma and Parry Sound during the absence of Mr. P. A. Switzer through illness.

—We notice that Brantford has recently entrusted to Mr. Wilkinson, the experienced Principal of the Central School, the control of the Ward Schools also.

—The conclusion of the year's work in Smith's Falls High School has showed very satisfactory results. The indefatigable labors of Mr. J. A. Clarke, M.A., B.Sc., Headmaster, and his staff, have been appreciated by all concerned. Mr. Clarke was presented by his pupils with a handsome silver pen-rack well stocked, accompanied by an address breathing a spirit of harmony and confidence. Mr. D. M. Stewart, assistant, received two large and useful volumes as a mark of his pupils' esteem.

—It is with much pleasure we record the unanimous appointment of Mr. J. B. Somerset to the Inspectorship of City Schools, Winnipeg, Manitoba. For some years Mr. Somerset has held the office of Inspector of Lincoln County Schools, where his devotion to duty, together with his high qualifications, earned for him universal respect and esteem. While we regret losing him in this Province, we feel he is a gain to his new field of labor, where his thorough mastery of all the details of the profession will be a benefit, and his kind, genial manner, will win many new friends.

—The prize distribution at Cobourg Collegiate Institute, Mr. D. C. McHenry, M.A., Principal, was the occasion of a large and influential assembly. Andrew Black, Esq., Chairman of the C.I. Board occupied the chair, and gave an opening address in which he reviewed the history of the school and stated that he was proud to say that its present position was one of unprecedented prosperity. The prizes were donated by James Cockburn, Esq., M.P., J.C. Fields, Esq., M.P.P., and J. Vance Gravely, Esq., Mayor. The Rev. Mr. Petley gave a prize for German, and spoke of the success of the school of which he was once a student. Messrs. D. M. Stickney and F. B. Stacey came out equal at the late intermediate examination, and were each entitled to the Governor-General's Medal, but as one only could get it, the C. I. Board decided to give the other a handsome prize in books. By common consent the medal was awarded to Mr. Stickney and the books to Mr. Stacey, both prizes being presented by the chairman. Dr. S. S. Nelles gave a short address.

—We were surprised at the state of efficiency which we found to exist in the Public Schools of Port Hope, when, a short time ago, we were fortunate enough to look through them, under the guidance of Mr. Goggin, the able Principal. We were not long in doubt as to the source of the good order, and the uniformly excellent methods of teaching which we observed. The people of Port Hope believe in allowing the manager of their Public Schools to have powers similar to those given to an experienced manager of a bank or other business concern. Mr. Goggin has control of all the Public Schools in the town, and they flourish under his management. They have a good High School Master, but they leave him to attend to his High School duties. If the people of Hamilton would do likewise, their Public Schools would not continue to be merely preparatory forms for their Collegiate Institute.

—We notice that Dr. Harris, Chairman of the Education Committee of Brantford Public School Board, has published a very effective letter in the *Expositor*, concerning the animated school discussion which has recently been going on in that city. The Doctor writes ably from the standpoint of a clear-headed trustee in defence of the appointment of Mr. Wilkinson to take charge of the Ward Schools as well as the Central Schools. He fully sustains the action of the Board, and we think replies satisfactorily to charges made against it.

—Our Editorial note referring to Ottawa Collegiate Institute, last month, got mixed at the end, in some unaccountable way. It should be, "It is proposed to increase the staff by appointing an additional University man in classics, at a salary of $1,000," &c.

Correspondence.

THE LAST ENTRANCE EXAMINATION.

To the Editor of the Canada School Journal:

SIR,—There is a matter in connection with the last examination for admission into High Schools and Collegiate Institutes which, I think, is deserving of public attention. On page 253 of the "Compendium of School Law and Regulations," it is clearly stated what ground this examination is to cover, and I wish to point out two instances in which the examiners seemed to have entirely ignored these regulations. We read there that in the subject of spelling the candidates shall be examined from the "Fourth reading-book to page 246, and spelling-book," and yet at the late examination the spelling was from pages 256 and 269. Every teacher knows that the Fourth Reader is the most difficult one of the series, and in the first 246 pages there is surely ample scope for selection without going beyond the limit. Now, Mr. Editor, is it fair to thus deceive teachers? Is it just to thus treat candidates, especially when it is remembered that, as one-third of the marks in each subject must be obtained, eight blunders in spelling will "pluck?"

Again, in the regulations we read that the arithmetic examination shall be on "principles of Arabic and Roman notation; vulgar fractions; decimal fractions; simple proportion, with reasons of rules; mental arithmetic." And yet at the late examination the last question on the arithmetic paper is one in percentage, and more marks are assigned to it than to any other on the paper. Should such an examination stand?

Having briefly pointed out these facts, I will in conclusion state clearly my position. If the standard be too low, by all means raise it; but having issued regulations, carry them out or issue none, and then we will never be surprised at any form the examination may take.

I hope some successful defence may be given on behalf of the examiners.

Yours, &c.,

Waterloo, Dec. 28. W. F. CHAPMAN.

Contributions.

THE CO-EDUCATION OF MIND AND BODY.

BY J. W. MCLAUGHLIN, M.B., L.R.C.P., L.R.C.S., ED.

(An address delivered before the Durham Teachers' Convention.)

The human system is a complex mechanism, composed of parts very dissimilar in their form and structure, but so admirably con-

nected and adapted to one another as to form a whole of great simplicity and perfection. But however wonderful the structure of the human frame, more wonderful still is its motive power—the power by which all the varied motions and functions of the body are accomplished—the power by which, without taking thought on our part, the food partaken of is digested and finally converted into blood for the nourishment of the various parts of the body—the power by which, even in moments of unconsciousness, the chest rises and falls in the act of breathing—the power which prompts the heart to its ceaseless toil of distributing the blood to all parts of the system near and remote. What is this power, and whence its origin? In this age of gigantic monopolies, Gould lays his hands on the lines of a continent and plants his great central batteries in New York, and with the gentlest pressure of his finger upon the electric key he makes his will known to the remotest corners of the earth. Not only can the electrician in New York send the electric current along many wires to many widely separated points at the same instant of time, but selecting a single wire his behests may be sent solely to the humblest hamlet in the land. Very similar are the origin and workings of that power which controls the operations of the human system. The brain is the great nerve battery which moves the whole machinery. The nerve cords are threads which connect the centre with every portion of the body, however minute are the wires along which the nerve current flows to accomplish its mission. The mind is the operator which determines to what part of the body a message shall be sent, and what that message shall be. So long as Gould's batteries are efficient, and his wires intact, he can sit down to his instrument with the full assurance that there will be a prompt response to the touch of the key, at any point to which his wire runs. But should his battery become impaired, or his chemicals exhausted, or his wires broken, Gould, with all his wealth, all his commercial and electric experience, is feeble as a babe to elicit from his apparatus the response he desires. So it is with the human organization. Impair the nerve batteries or their connections, impair any of the many organs which manufacture and purify the blood, which nourish the nerve centres and keep them in repair, and however well educated the mind, and however powerful the will, the system will not, and cannot, respond to the calls upon it. A sound digestive apparatus is essential to the manufacture of blood. Good lungs are essential to its purification, and pure blood essential to the healthy operations of the brain.

Importance of physical exercise.—But experience in all ages and climes has proved that without physical exercise the organs of the system cannot be maintained in a healthy condition, and hence it is that wholesome mental toil is inseparable from physical exercise, or "co-education and development of mind and body" is the sound doctrine. Every intelligent member of the human race affords a wonderful example of what may be accomplished under this combined system. Here is a child of five years. Has his mind during this short period been quiescent? Has his brain not been the seat of ceaseless energy and activity? He has learned the name of every article in his home, in the garden, by the roadside, everywhere. He has also learned the use of them all. He has learned to speak a language. How has that tiny form with his delicate, unfolding organs accomplished a task of such magnitude? What is the secret of the child's wonderful achievement? It is this: The ceaseless activity of his mind is accompanied by the ceaseless activity of his body. As he runs he learns, and as he learns he runs.

The great error of our educational system is that it has overlooked the necessity for this co-education, this co-development of mind and body. A child of five or six years upon entering school changes a life of physical freedom for that of physical imprisonment for four, or five, or six hours daily. But I will be told the programme of studies provides that drill and calisthenics shall be taught through every grade of the Public Schools. Yes, these subjects are in the programme, but they are not in the schools, and they are not because they are crowded out by the multitude of other subjects demanding attention. Drill and calisthenics are added to the list of studies as a sort of appendage, more for ornament than usefulness, and this has been its practical working. Of the 487,012 who attended our Public Schools in 1879, only 58,507, or one in every eight, studied drill and calisthenics. Of the 12,136 who attended the High Schools in this same year, only 2,857, or one in four and a half, studied these subjects. Although I cannot speak authoritatively, my enquiries lead me to believe that even where these subjects are said to be taught, the instructions are, in most cases, of a very superficial and perfunctory character.

How to combine physical and mental culture.—Practically, therefore, as a system of instruction, physical development, along with mental culture, is to a very great extent ignored, both in the Public and High Schools of our Province. I shall now endeavour to answer the important question. How may mental and physical culture be combined in a system of education? 1st. In the school-room the attitude of the pupil, whether sitting or standing, should never be prejudicial to health. The importance of this rule will be appreciated when I tell you that deformities which disfigure for life are acquired in the class-room. These are mainly, so far as my observation goes, exclusively spinal in their character.

Spinal deformity and the ease with which it may be produced will be readily understood when we recall the structure of the spinal column. It is composed of 24 bones, connected by 23 soft cushions each about one-quarter the depth of the adjacent bone. A column, therefore, of 25 inches will comprise 5 inches of this connective tissue. One—and the most important—property of this tissue is elasticity. When submitted to pressure it yields to it, just as rubber does; but whilst the rubber immediately returns to its natural state when the pressure is removed, the elastic cushions do not until after considerable time has elapsed. That I may impress this property of spinal connective tissue the more firmly on your minds, let me narrate the following physiological experiment:—The height of seven persons was taken at night and in the morning, with the following results. The ages of the persons measured varied from 40 down to 5 years. The following are the figures, commencing with the eldest:—

	Age.	Height at night.	Morning.	Increase.
		Ft. In.	Ft. In.	In.
1	40	5 9	5 9⅞	⅞
2	33	5 2½	5 3⅜	⅞
3	26	5 1¼	5 2	¾
4	14	5 0½	5 1¼	¾
5	11	4 5¾	4 6¼	½
6	9	4 3	4 3½	½
7	5	3 4¼	3 4¾	½

A cause of spinal curvature.—There is thus a gain during the night of from ½ to ⅞ of an inch, or reversing the order, there is a loss in height going on constantly during the activities of the day, amounting at its close to ⅞ of an inch in the adult and to ½ an inch in a child of five years; and all this is due to the condensation of the elastic tissue between the bones of the spinal column. You will have no difficulty now in understanding that if any unnatural position of the spine is assumed and maintained from day to day and week to week, the position becomes a fixity—a deformity. A child seated at a high desk in using the right arm, in writing, &c., cannot avoid curving the spine to the right. A pupil seated at a very low desk must stoop forward to his work, and the spine is bent backward at the shoulders. Humpback is produced. But apart from a want of adaptation between pupil and desk, these deformities are often, I believe most frequently, the result of careless, lazy habits on the part of the pupil, and thoughtlessness or neglect on the part of the teacher. Pupils assume, and are allowed to assume, almost any attitude—often abnormal attitudes in their seats. But a greater mistake, and it seems to be almost universal, is the vicious position a pupil is allowed to maintain in the reciting class, especially in reading. The book is firmly grasped in both hands, the head is bent forward as far as a long-suffering spine will allow, and in this mischievous attitude a child in the lower divisions passes hours daily. But some one will say, what if these curvatures are acquired? After all is said, it is but a little deformity. Were I to ask you to correct these errors for the sake of adding grace to the figure, it would be an object not unworthy your most serious consideration. But apart from elegance of form there are reasons of a sanitary character of far greater importance. Every departure from the natural position of the spine entails a diminution of the chest cavity, and, consequently, a diminution of lung capacity to purify the blood. To establish this proposition by a reference to the complex mechanism of the chest would involve more of your time than I find at my disposal. The simplest proof I can give you is drawn

from your own experience. Almost everyone at some period or other, has vied with his companion in endeavouring at the greatest possible distance to make the flame of a lamp or candle flicker by blowing upon it. Should there be anyone within my hearing to-night who has never tried this experiment, I ask you to do so, and note particularly the attitude you instinctively assume. The body is made erect, the shoulders thrown back, the chest forward. And why? Because in this position more air can be taken into the lungs than in any other position, and the more air drawn into the lungs, the more can be driven out, and the more air driven in a particular direction by the same force, the farther its effects will be felt. Hence the straight, the erect, the natural attitude is that in which the lungs are well expanded in breathing, and if kept in this form day by day in the maturing child, they will develop into large lungs —lungs which can with ease and certainty perform their important function of purifying the blood. On the other hand, allow the spine to curve laterally or to bend forward, and full lung development is arrested. Smaller lungs are formed, and the purification of the blood is less perfect, and the tax upon their energies greater. Large lungs in a well formed chest mean comparative immunity from lung disease, especially consumption. Small lungs in a contracted, badly-formed chest, mean a tendency to disease, especially consumption. Much is said about hereditary pre-disposition, or the tendency children have to inherit the disease of their parents. We are told, *e. g.*, that the child of consumptive parents enters upon existence with the germs of disease floating in his system, and only awaiting (it may be for twenty, thirty, or fifty years) a favourable opportunity for development—an opportunity for the germ to take root and bring forth fruit for the grave. This theory, which I cannot believe to be the correct one, has in it a fatalism so sad and discouraging that no one having the ill-fated germ could be aroused to make a struggle for life.

The correct theory I believe to be this: A consumptive parent with a badly formed chest, containing small lungs, may give, indeed is almost certain to give to the child, a chest and lungs of the same conformation; and what will be the destiny of that child? To a very large extent the destiny will be what his parents and teachers make it. I have no hesitation in affirming that a diligent attention to the principles I have been endeavouring to inculcate, with the observance of other sanitary measures, will go far to arrest the calamity which befel the parent. But some objector will complain that a rigid adherence to this straight, erect position will become tedious to the pupils. It will do so, however, only for a very short time, only until properly acquired, and then it will prove a source of comfort rather than a source of weariness.

Class-room calisthenics. 2. This brings me to the discussion of the second method of joint physical and mental culture, viz., class-room calisthenics. These exercises, consisting mainly for the class-room, of certain regular motions of the arms and head quickly executed, are intended, first, to call away the mind from the worry of study, and rest the brain, and second, to give vigor to the system by muscular exercise. At a certain word of command, given in a clear, firm tone by the teacher, see that every pupil instantly drops his work and obeys the order with the promptitude of a disciplined soldier. Give even one minute of vigorous calisthenic exercise, and the pupils will return to their studies with clearer and more vigorous brains, and the minute or two spent in the exercise will prove to be the very best kind of investment, both for mind and body. The traveller at sea hears the cry given, in a clear, stentorian voice, "Man the boats," and instantly it is repeated by the mates, until in a moment of time the command is clearly heard from stem to stern of the vessel. The cooks drop their pastry; the stewards cease their service. Every hand of the vessel hastens to his allotted boat, and in an incredibly short time the boats are swung clear of the vessel and lowered, and then returned to their places, and the hands all back to their work again. The discipline of the tar enables him to accomplish this work in the smallest interspace of time. And why not the pupil? But another objector will say, "It will require much time to acquire this discipline and learn these calisthenic exercises." I am not aware that any really good thing can be accomplished without the expenditure of considerable time and energy. But we must remember that the object of our school system is mental discipline, and what better lesson can be instilled into the young mind than prompt obedience and order in carrying out a command.

But my objector must remember, in addition to the mental discipline, that physical culture and relief to the monotony of the school hours are invaluable. I would therefore urge upon the teachers whom I have the honour of addressing the importance of the practice of calisthenics in the school-room as well as in the play-ground. No child under ten years should be required to sitlonger than fifteen minutes without a change involving decided physical exercise. The mere alteration from the sitting posture to the standing in the class is valueless. Nor should those over ten years of age be exempt from calisthenics even in the class-room. The slightest appearance of languor or weariness creeping over a class at any time should be an indication, not to be disregarded, that the class should be called up for calisthenics. I am persuaded, apart from the physical advantages to be derived from these exercises, more real, genuine, healthy mental labour can be performed; the gain is, therefore, both physical and mental. Why, then, is it that a subject of such vital importance is so sadly neglected? I believe there are two reasons. 1st. The amount of work crowded into the programme is so great that teachers require all the time at their disposal to overtake it. 2nd. It is not one of the subjects on that examination to which with fear and trembling they are looking forward. I cannot leave this branch of my subject without expressing the opinion that every teacher in the land should possess and study a small work on "Drill and Calisthenics," by Mr. Hughes, Public School Inspector, of Toronto. It contains not only military drill, but a multitude of different kinds of exercises, all admirably calculated to aid in the development of a graceful and sound physical organization. My time will only allow me to mention the important subject of ventilation.

The air passing out of the lungs each time we breathe is loaded with carbonic acid and other impurities. The 2,300,000 sweat pores opening upon the surface of the body pour out daily from one to two pints of fluid containing impurities, some of which escape into the air. From these two sources, the atmosphere of a room occupied by forty or fifty children soon becomes thoroughly contaminated, unless ample means are provided for ventilation. Pure air is absolutely necessary for the purification of the blood, and pure blood is essential to the proper nourishment of the organs of the body. If, therefore, the air is impure, the blood will be impure, and the brain badly nourished, and consequently unable to afford that nerve power necessary for clear, profitable thought. I can only stop to mention one simple means of ventilation which can be adopted in nine-tenths, perhaps all, of the public schools of the country, and it is quite efficient. The upper sashes of opposite windows are lowered, and if the window blinds are attached to the window frames, they must be removed and fastened to the upper rails of the sashes, so that they will not interfere with the free ingress and egress of the air. The judgment of the teacher must determine the size of the opening. The warmer and stiller the air, the larger they would be, and *vice versa*. I desire now to ask your attention to the mode of punishment adopted in our schools, and ascertain, if possible, whether it is the method best adapted to promote physical health or otherwise. Man always has been, is, and I suppose always will be, a creature of extremes. A half a century ago, and less, punishment was torture and cruelty. To be sentenced for six months to the horrid dungeons and cruelty of those days was almost equivalent to be sentenced to death. But Howard and other philanthropists grappled with the prison wrongs of that period, and the wave of amelioration which then commenced has swept over every civilized land, and now prisons are almost palaces, and all prison life means is a loss of liberty. The same wave has unfortunately contaminated the ideas and practices of our teachers, and corporal punishment is completely abandoned, except in extreme cases. Unfortunate transgressors are sentenced to "stay in at intermission or after school is dismissed." The pupils are thus robbed of the fresh air and frolic of the intermission, and to the mental worry of study until the hour of intermission, is added the intensified worry of imprisonment in the vitiated air left by his companions, and without exercise, and without imbibing the pure external air, he must worry on until school is dismissed. Will any one say that these children have not been grossly wronged? Better far, especially for all the younger pupils, inflict corporal punishment, and give the offenders the fullest benefit of their scant opportunities to resuscitate their physical organizations. But my time is more than exhausted, and I must conclude. Teachers of this association, you have a work before you as far-reaching in its destiny as it is deep in importance. To you, in no small degree, is committed the problem of determining what shall be the physical and mental status of the generation that is to follow us. I urge you to realize fully the importance of your work, and to do your duty well.

SCHOOL ROOM HYGIENE.

SUBSTANCE OF AN ADDRESS AT THE NORTH YORK TEACHERS' ASSOCIATION, BY D. FOTHERINGHAM, P.S.I.

I begin by asking what *ends* should be kept in view in the erec- of a school room. The first, and often the only end aimed at, is the *Intellectual Education* of our youth. That is a truly worthy aim, for we want, in the future, men and women, shrewd, clear-headed, incisive, who shall be able to take in any situation at a glance, and decide the right course of action on short notice. But any trustee or community that shall stop here, and fail to recognize need for *education* other than *intellectual*, fails sadly in understanding the true necessities of the case. For a vigorous and successful career through life, our coming men and women must possess strong and healthy frames—their *Physical Education* should receive consideration scarcely secondary to Intellectual. The practical value of Intellectual Power is closely and inseparably dependent on Physical Power, and any provision for promoting the one without full attention to the other, is short-sighted and unwise. To be useful, to be successful in life, we must see that our young people shall possess a sound body as well as a sound mind. In the majority of cases, Physical Education is not once thought of, and no adequate provision is made for it in the construction and arrangements of our school rooms. Till this is done, justice is not done to the wonderful powers and possibilities of our compound being. Nay, more, the seeds of deformity and disease, are, too often, sown through the oversight and neglect of reasonable provision for the comfort and health of the body in the school room. See how careful a horse fancier is of the physical condition of his roadster, and how he seeks by every means to keep it in the best possible condition for use. Contrast with this our neglect of the physical training of children.

I venture to say further, that the *Social Education* of young people receives *no sufficient* consideration in the construction of school rooms. What enlightened and liberal provision is made, in the space and rooms of a School House, for natural movements and intercourse among the young people—for observing the proprieties, civilities and amenities of life—for developing and perfecting the knowledge and practice of true politeness and unselfish consideration of others?

But, above and beyond the Intellectual, Physical, and Social, we should make provision for the *Moral Education* of youth. And any provision for the future well-being and well-doing of our children should see to it that all strength shall be developed in *moral* principles. The school room should be arranged and its work conducted with direct and deliberate purpose to develop the virtues of truth, honesty, purity, justice, self-sacrifice, and the fear of God; and no one will deny that the child's surroundings do help or hinder in the formation of habits and character.

I claim, therefore, that in the construction of School houses regard should be had to:

1.—Intellectual Education.
2.—Physical "
3.—Social "
4.—Moral "

These departments of training are so closely allied and interlaced that the neglect of one must unfavorably influence all the others; and so I introduce my remarks on School Room Hygiene by calling attention to them. I now proceed to my subject proper:

The Hygiene of the School room is in no way so often and so seriously influenced unfavorably as by the state of

I. THE ATMOSPHERE.

1. *Its Quality* should be *good*. It will not do to have it good and bad alternately. To insure health and normal condition of mind and body, we must see that we have a normal condition of the air we breathe. One of the most frequent and most inexcusable mistakes of the school room is to allow 40, 50, even 80, or 90 pairs of lungs, to use up the vitalizing oxygen, and load the atmosphere with the poisonous exhalations of the body for half an hour, or an hour, without any intelligent effort to preserve the purity or remove the impurities of the air. Too often, even now, after ten years of earnest effort to secure pure air and clear minds in schools, do I enter rooms almost hermetically sealed, with fifty or sixty precious lives languishing in what might soon become another Black Hole—without arrangement of any kind for the regular and rapid escape of the fetid and used up, or admission of the pure and bracing. "What would I do if Trustees would not make arrangements for ventilation?" I would take a hammer and nails and suitable pieces of wood, and tear out and down and re-arrange till windows could be easily opened at top and bottom. I would, at any cost, make it possible for myself and my children to breathe pure air at every inspiration, though this would give neither the best nor safest possible ventilation. Talk of cramming! talk of over home study! I dare assert that for *one* child that is injured by these, *one hundred* are enfeebled for life by the insane indifference of the general public, of school authorities, and even of some teachers, to the state of the school room air. Pure air has far more to do with good discipline, good progress and good health, than is generally realized.

Before leaving this point, I would call attention to the import ance of selecting school sites in localities free from malarial influences, where good drainage can be secured. Too often these points are sacrificed to meet a desire to have a school in the territorial centre.

2. *Its Quantity.*—You cannot have too much good air. The only limit I would set to the space allowed in the school-room would be ability properly to regulate the temperature. The legal requirement, 120 cubic feet for each of two-thirds of the school population, is a niggardly pittance of the great ocean with which we are surrounded so bountifully, so mercifully. Think of the rapidity with which fifty persons, breathing fifteen times a minute, and two pints at one breath, will destroy the purity and vitiate the atmosphere of an ordinary school-room. For it is not the whole air that vitalizes. The oxygen constitutes but one-fifth of the whole volume of air, and that alone gives support to life. While this is consumed so rapidly it is replaced as fast by gases and vapors from the system, which, if breathed again, speedily stupefy and poison. In ordinary circumstances, the higher ceilings are the better, as most of the gases and vapors, on escaping from the body, ascend, though one of the most poisonous—carbonic acid gas—sinks; and this leads me to speak of

3. *Its Circulation.—Still air* soon becomes *bad*. Nature seldom allows the air to rest. Breezes, winds, gales, give constant change and purity to the atmosphere outside, while with our ceiled houses and closed windows and doors, the bracing purity and rapid change are excluded, and the inside becomes a stagnant pool of fetid air. Let a room without occupants be closed for a short time, and we cannot breathe the air it contains with comfort; but shut in it fifty people, and set a fire going to consume *its* quota, too, of the oxygen, and a few minutes are sufficient to destroy its life-sustaining properties. It is thus evident that the air of a school-room should be kept in constant circulation. Bad air should be driven out by the inflow of good air moment by moment. It is not sufficient to make periodic changes. Teachers and scholars often forget to do that. Arrangement should be made for a supply equal to the demand, which has been shown to be constant and great. How to do so is a difficult problem. Draughts must be avoided. Violent changes of temperature must not be permitted. To secure good air without these frequent attendants, requires both great skill and considerable expense. In my opinion, furnaces with sufficient capacity, supplied with outside, fresh air, throwing in a constant supply of this heated (not scorched) air, with proper ventilation at the ceiling and floor for the escape of impure air, is within the reach of all School Sections. And then the pernicious method of heating the already impure air by stoves would be done away. Ventilation by the tops and bottoms of windows is much better than none; but there is this serious objection to it in severe weather, those seated near such openings are subjected to draughts and chills, while those in other parts of the room do not get much benefit from the change. There is this objection also, the heated air escapes too readily by the open windows, while the cold air falling, as it always does, to the floor, keeps the feet in too low a temperature. However, till you are provided with better means of ventilation, keep rousing fires and open windows, so as to insure rapid change of air. When I have advised Trustees to construct furnaces while erecting houses, so that the pure air could be heated and thrown steadily into the school-room, the matter of health was not for a moment considered. The question was, Would it cost more? and, as undoubtedly it would,

the decision was in favor of the time-honored "Black Giant." A hundred dollars or so extra could not be thought of, to make sure that the young people should have good air, good health, good nature and good work, even though the S. S. would not have to pay on an average one dollar more on $1,500 of assessed value. This false economy, growing out of ignorance of the laws of hygiene, must ultimately give place to wise and liberal provision for giving good air to the schools.

4. *Its Temperature.*—The temperature of the School-room has much to do with its success and comfort. In fixing the degree of temperature, several matters should be considered:—the flow of air into and out of the room, the quantity of air, the rest ormotion of the children, their clothing, the state of their health, their proximity or remoteness from the stove, &c., &c. You cannot lay down any arbitrary rule. The teacher, who is, or should be constantly moving, and is usually in a more elevated position, can be comfortable in a lower temperature than children sitting at their desks. Then, too, some are thinly clad, and poorly fed, and some are delicate; so that you should consider what is best for the whole, and not risky for any. I should say a temperature of about 70 degrees where a thermometer is usually hung—behind the teacher—would not be much out of the way, especially if the house is a comfortable one. But when your house is cold, and stands on cedar posts, without banking, you cannot make the temperature what it should be; and, if your children suffer from cold feet, let them go to the stove to warm them, even if they do not study half time. It is worse than cruelty to compel them to inhabit such a house winter after winter. If you are obliged to heat your stove like a smelting furnace in such a house, have screens to set around the stove, to protect those who must sit near it. Many a child has been made ill by this half roasting, half freezing process.

Next to the atmosphere, one of the most potent influences affecting school-room hygiene is

II. LIGHT.

The influence of *light* on the health is largely over-looked. Yet its silent, gentle, constant power, is vastly important. Plants soon languish and die without it, and animals deprived of it lose sight and health, and even life. Much attention should be given in the school-room to

1. *Its Color.*—Pure, prismatic colors, in the right proportion, should always be secured. The light admitted through frosted or stained glass is usually deprived of some of its constituents, and distresses the eye, and injures the health to some extent. That transmitted through orange or yellow Holland is still worse. It is so far robbed of its proportions and properties as to be very uncomfortable. Reflected light, too, is often very much impaired. The surface of walls, ceilings, &c., should be of such a color as to soften and harmonize shades of light. Where the direct rays have to be shut out, green or blue shades are preferable even to white.

2. *Its Intensity.*—Men can labor out doors in the direct rays of the sun, without distress, if the eyes are shaded, when children and other students, who are poring over marks and characters at a small distance, suffer readily from excess of light. The reason is not far to seek, Out of doors the eyes are constantly bathed in fresh air, the focus is seldom the same for more than a few moments, and there is relief in variety of shades and objects; while with the student this is all reversed. The light is the same, the focus is the same, and there is no variety. The monotony of effort, of color, of focus, of object, taxes to injury very quickly. The light of the school-room should therefore be sufficient, but softened, and even subdued, to meet the change of circumstances under which the eye is used. Black slates and white paper are objectionable. Nature's prevailing shades should be copied in the materials on which the eye has to gaze with steady and trying intensity. In this way variety and harmony would relieve the unavoidable taxation.

3. *Its Direction.*—Little that your own observation may not suggest can be said on this point, which, however, is not unimportant. The direct or reflected light which strikes directly into the eye, is always to be avoided. Light should be admitted so as to enable the pupils to see their work clearly and readily. It should come from a direction not to throw shadows which interefere with vision, nor to oblige the eyes to squint or strain after their work. In this connection, let me urge upon you the great evil that is so often done to the eyes by allowing them to squint, or look awry at work, and by permitting the face to approach within a few inches of the book in use. Train to proper attitude and the proper focus, considering cases of myopy, or the reverse.

In the last place I speak of

III. ACCOMMODATION.

1 *Accommodation for Study.*—This should be *removed* as far as possible from the place for recitation. It should be *convenient*, so that work could be taken or replaced without trouble or noise. It should be *comfortable*, so that the body, as well as the mind, may rest naturally and at ease. It is too late in the day to ignore physical comfort to children. Matured persons can far better endure physical discomfort than immature ones, in the early stages of development, when bones, muscles, and nerves, are less capable of strain. Yet, in three out of four cases, the effects of even the improved desks and seats on the young people, are seriously hurtful. What is more fatiguing for a child than to sit for hours with its feet dangling in the air, throwing the spine out of its natural curve, and crowding the lungs, wearying the muscles that must support the weight of the lower limbs, and curving the soft thigh bones? How few of your children are of the size to take advantage of their chairs, which are far better adapted for giving a finish to their looks than support to the weary spine of the growing, tired boy or girl? Why should not the seats be graded in height so as to allow the feet to rest comfortably on the floor? Why should not the chairs brace the seat and back so as to support and preserve the natural postures and curves of the body! Why should not the desks be so sized and shaped as to hold the work at a comfortable and natural distance before their occupants? Look over your children at a writing exercise, and count how many of them look like star-fish on the back of an oyster; and all because the seats and desks are not suitable for them. If you have any penitent stools in the shape of forms without backs, at least cut off the feet till the top is within ten inches of the floor, and set them along the wall. If you do not you will be responsible for round shoulders, hollow chests, and enfeebled frames, to a serious extent.

2. *Accommodation for Recitation.*—In Schools not graded thoroughly, hearing of lessons and teaching interfere very seriously with the quiet and work of the school-room. In such schools of the future, I hope to see a separate room for recitation, with glass doors between that and the study room, (which may be thrown open when not in use), into which the teacher and class will retire. If the future boy and girl are as irrepressible as some are now, a monitor can be left in charge. In this way there will not only be less interruption of work, but more air space; and, in addition, there should be comfortable seats, rests for books, &c., so that the fatiguing practice of standing still for half an hour may not be a necessity. When a class-room is not provided, seats between the teacher's desk and those of the children may be used, though health may suggest standing sometimes instead of sitting. In either posture, insist upon natural attitudes. Much harm is done to the powers of developments, as well as to the grace and ease of the human form, by neglecting this point. Who ever heard of compelling soldiers to stand half an hour "Heels together, toes out!" or hands pinioned behind or at sides? These awkward and tiresome postures are as inconsistent with health as they are with grace of figure or motion. Study the simple laws of "Action," as laid down in any work on elocution, and you will find that they take hold of the graceful and expressive laws of a healthy and well developed physical frame, and make them contribute to the power of vocal language. Let the right hand and foot be at "At ease," the shoulders thrown back, the organs of speech free to move by holding the head erect, and the eyes taxed by neither too great nor too short a distance from their work.

3. *Accommodation for Recreation, Lunch, Rest, &c.*—Not only would it add to the comfort of a school-house to possess such a room; but it would also be heathful, and prevent damage to furniture. Basements or second floors could readily be fitted and heated for such purposes. The children would not be tempted to disobey orders, by making the school-room proper a play or lunch room. In disagreeable weather, physical exercise, exhilarating games, songs, drill, &c., could be secured. Without such accommodation, in bad weather, as matters now are, how the buoyancy, the activity, the good humor of children must be repressed! and how the inventive but restless spirits will involve themselves, the teacher, and sometimes the whole school in trouble.

Thus, hurriedly and imperfectly, have I tried to lay before you seed thoughts on a subject to which very small justice has as yet been done, but to which, if children are to be *educated* aright, must ever increasing importance be attached—School-room Hygiene.

General Information.

Mortality in Different Pursuits.—The reports of the British Registrars-General show that the annual death-rate in the United Kingdom is about one in forty-five of the entire population. The larger, but not the largest towns, lead in the rate of mortality, and the rural mainland districts occupy an intermediate place between them and the insular districts, the extremes varying by about fifty per cent. As between the three great classes into which the population may be divided—the laboring, the trading and professional classes, and the gentry and titled—the chances are very nearly equal, although a slight advantage appears to be shown in favor of the first class. The trades most unfavorable to long life are, as a rule, those which tend to expose the operative to an atmosphere loaded with dust, or compel him to deal in one way or another with poisons. Dry grinding, as practiced on needles and forks at Sheffield, is the worst; working in coal-mines is the next in deadliness. Gilders and silverers of glass are exposed to vapors of mercury; workers in brass are liable to diseases produced by exposure to volatilized oxide of lead; all who work in paints are subject to great risks; soldiers and sailors have their lives shortened by the exposure they have to undergo, or by diseases brought on by their habits of living. Bakers, tailors, milliners are liable to consumption; compositors peculiarly so. Pressmen fare better than compositors, probably because their work is more active. In the country, farming appears to be the most healthy of occupations, while that of the innkeeper is the most fatal. Butchers die comparatively early, as also do brewers, draymen, and those who have much to do with establishments for eating and drinking. The over-exertion of those who follow athletic pursuits appears to conduce quite as much to short life as does the sedentary strain of the student. It seems to make but little difference in the "expectation of life" of in-door workers whether their labor is hard or not; but those who are employed out-of-doors have a chance of living six years longer, if their work keeps them busy and active, than if it is a mere matter of routine and standing around; and a "comparison of the tables leads us to the conclusion that the life of the out-door worker with little exercise is worse than that of the sedentary in-door worker, whether with little or with great exercise." The most curious fact brought out is that the scavengers, dustmen, and cleaners of sewers in London, are reckoned among the healthiest of the population.

Parasites in Food and Drink.—M. Milne-Edwards has recently expressed some interesting views suggested by the discussions concerning trichina, respecting the hygienic questions which are connected with the establishment of colonies of intestinal worms, or *microbes*, within human bodies. He believes that certain religious precepts and certain established usages, among people whose civilization is very ancient, are based upon acquaintance with the inconveniences that may result from the alimentary use of particular meats or waters. He thus deduces, from the aptitude of the hog to transmit his parasites to man, the reason for the prohibition of pork among the Israelites and Mohammedans, and for the Biblical distinction between pure and impure animals. He also attributes to the very ancient recognition of analogous facts the general use of hot drinks, like tea in China and other countries of the extreme East, where the natural waters are often charged with noxious animalcules or polluted by unclean animals. As bearing on this point, he cites the ravages caused in Cochin-China by a microscopic eel, which produces a persistent endemic diarrhœa. These animals have a faculty of multiplication in the human intestine, that is illustrated by the fact that a single patient is said to have evacuated more than a hundred thousand of them within twenty-four hours! The simplest prudence should suggest the expediency of boiling the drinking-water wherever they abound.

Origin of Thanksgiving Day.—The story is told that in a time of great despondency among the first settlers of New England it was proposed in one of their public assemblies to proclaim a fast. An old farmer arose and spoke of their provoking heaven with their complaints; he reviewed their mercies—showed they had much to be thankful for, and moved that instead of appointing a day of fasting, they should appoint a day of thanksgiving. The incident teaches that true piety in all circumstances finds something to be thankful for. The old farmer acted upon the theory that our Heavenly Father does not take pleasure in seeing his children suffer, and that we cannot please Him by starving ourselves. "Ye are my friends if ye *do* whatsoever I command you." This custom of proclaiming a public thanksgiving day continued a New England custom, at first at irregular intervals, afterwards annually till 1862, when President Lincoln proclaimed a national thanksgiving day. Since that it has been observed annually; but not until within a comparatively few years has the day been generally observed outside of New England. In the East this is the day of all the year for family reunions and neighborly meetings and greetings. The custom is a beautiful one, and should be universally observed. The fourth Thursday in November should be one of the brightest days of the year.

Sleep.—There is no fact more clearly established in the physiology of man than this, that the brain expends its energies and itself during the hours of wakefulness, and that these are recuperated during sleep; if the recuperation does not equal the expenditure, the brain withers; this is insanity. Thus it is that in early English history, persons who were condemned to death by being prevented from sleeping, always died raving maniacs; thus it is also that those who are starved to death become insane; the brain is not nourished and they cannot sleep. The practical inferences are three:—Those who think most, who do the most work, require the most sleep; that time "saved" from necessary sleep is infallibly destructive to mind, body, and estate. Give yourself, your children, your servants, give all who are under you the fullest amount of sleep they will take by compelling them to go to bed at some regular early hour, and to rise in the morning the moment they awake of themselves, and within a fortnight, nature, with almost the regularity of the rising sun, will unloose the bonds of sleep the moment enough repose has been secured for the wants of the system. This is the only safe and sufficient rule, and as to the question how much sleep any one requires, each must be a rule for himself; great nature will never fail to write it out to the observer, under the regulations just given.

Bank of England Notes.—Bank of England notes are made from pure white linen cuttings only, never from rags that have been worn. So carefully is the paper prepared that even the number of dips into the pulp made by each individual workman is registered on a dial by machinery, and the sheets are carefully counted and booked to each person through whose hands they pass. The printing is done by a most curious process within the bank building. There is an elaborate arrangement for securing that no notes shall be exactly like any other in existence; consequently there never has been a duplicate bank note except by forgery. The stock of paid notes for seven years is said to amount to 94,000,000 and to fill 10,000 boxes, which, if placed side by side, would cover over three miles in extent.—*Stationer and Printer.*

In Japan the spiders are so numerous that their webs form the chief draw-back to telegraphy by grounding the electric current. The trees literally swarm with spiders, and they spin their webs everywhere between the earth, wires, posts, and insulators. When these lines are covered with heavy dews, they become good conductors, and run the messages "into the ground." The telegraph company are obliged to employ men to sweep the wires with bamboo brushes, but the spiders are so numerous, and such indefatigable workers, that the men with their brushes cannot always keep the wires in good condition for the transmission of messages.

The Blue Sky.—M. Chappius thinks that the blue of the sky may be due to ozone present in the upper regions of the air. He argues that the electrical discharges constantly taking place will produce ozone; and the researches of himself and M. Hautefuille have shown that ozone, at any rate when near its condensation point, is of a blue tint. He has examined the absorption spectrum of ozone and finds nine dark bands in it, three at least of which correspond with known bands in the telluric spectrum.

Mathematical Department.

JUNIOR MATRICULATION, JUNE, 1881

UNIVERSITY OF TORONTO.

PASS MATHEMATICS.

Examiner: A. K. Blackadar, B.A.

1. Simplify

$$\frac{\cdot 8}{\cdot 3} - \frac{45}{8}\left(\frac{16}{25} - \cdot 1\right) + \frac{\frac{4}{5}(\cdot 64 - \frac{1}{9}) \times \cdot 390625}{\cdot 1\dot{1}(\frac{1}{3} + \frac{1}{2})}$$

2. Find the square root of 5 to five decimal places, and reduce the values of

$$\frac{1}{\sqrt{5}},\ \sqrt{\cdot 002},\ \frac{5+\sqrt{5}}{5-\sqrt{5}},\ \text{and}\ \sqrt{6+2\sqrt{5}}.$$

3. (*a*) How much will \$1000 amount in $2\frac{1}{2}$ years, compound interest, 4 per cent. per annum, payable half-yearly?

(*b*) A person pays \$292.50 for \$300 due three months hence. What rate per cent. interest does he receive?

4. What is meant by the expression, "Sterling Exchange, $9\frac{1}{2}$ p. c. premium"?

A person pays \$181.50 for £37 : 10s., stg. What per cent. premium is Sterling Exchange?

5. Multiply $b^2+(a-b)(b-c)$ by $c^2+(b-c)(c-a)$.

Shew that your answer is correct by substituting $a=2$, $b=0$, $c=-3$.

6. Simplify (1) $\dfrac{a^2b\ c^{-2}}{a^{-1}b^2c^{-3}}$.

(2) $\dfrac{x^2-2+x^{-2}}{x^2-x^{-2}} - \dfrac{x^3}{x^2+1}$.

7 Resolve into factors.

a^2-b^2, $ab+bc+ca+b^2$,

$a(b+c)^2+b(c+a)^2+c(a+b)^2-4abc$.

$(a+b)^3-2b\dfrac{a^3-b^3}{a-b}+c(a^2-b^2)-2ab^2$.

Find the Greatest Common Measure, and the Least Common Multiple of these *four* quantities.

8. Solve the equations

(1) $ax+b=bx+a$.

(2) $\dfrac{1}{x^2+3x+2}+\dfrac{1}{x^2+5x+6}=\dfrac{1}{x^2+x+-2}$.

(3) $\begin{cases} \dfrac{2}{x}-\dfrac{3}{y}=4. \\ 2x-3y=2xy. \end{cases}$

(4) $\begin{cases} xy-yz=18. \\ x^2+z^2=4y^2+2xz. \\ x^2-8=2xy+2xz. \end{cases}$

9. There are two vessels, A and B, each containing a mixture of water and wine, A in the ratio of 2 : 3, B in the ratio of 3 : 7. What quantity must be taken from each in order to form a third mixture which shall contain 5 gallons of water and 11 of wine?

10. Describe a triangle, of which the sides shall be equal to three given straight lines, any two of which are together greater than the third.

A straight line AD is divided into three equal parts by the points B and C; on AB, BC, CD are described equilateral triangles AEB, BFC, CGD respectively; shew that the three straight lines AE, AF, AG, can form a triangle equal in area to the equilateral triangle A

11. Divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts shall be equal to the square on the other part.

12. Define the terms, *circle*, *tangent to a circle*, and *segment of a circle*.

The angles in the same segment of a circle are equal to one another.

SOLUTIONS.

1. Expression $=\dfrac{6}{25}-\dfrac{45}{8}\left(\dfrac{16}{25}-\dfrac{1}{9}\right)+\dfrac{54}{5}\times\dfrac{4}{5}\left(\dfrac{16}{25}-\dfrac{1}{9}\right)\dfrac{25}{64}$

$$=\frac{6}{25}-\frac{45}{8}\times\frac{17}{15}\times\frac{7}{15}+\frac{27}{8}\times\frac{17}{15}\times\frac{7}{15}$$

$$=\frac{6}{25}-\frac{9}{4}\times\frac{119}{225}=\frac{6}{25}-\frac{119}{100}=-\frac{95}{100}.$$

2. See Hamblin Smith's Alg., p. 315. and Hamblin Smith's Arith. App. I. (Can. Ed.)

We use the Binomial Theorem for larger numbers and the latter method for small numbers.

We see by inspection, ordinary method $\sqrt{5}=2\cdot 2+$

Substitute 5 for N and $2\cdot 2$ for a in the formula

$$\sqrt{N}=a.\frac{3N+a^2}{N+3a^2} \text{ and } \sqrt{5}=2\cdot 2\times\frac{15+4\cdot 84}{5+3(4\cdot 84)}=\frac{1\cdot 1\times 1\cdot 24}{\cdot 61}=2\cdot 23606.$$

N.B.—The general formula is

$$\sqrt[n]{N}=a.\frac{(n+1)N+(n-1)a^n}{(n-1)N+(n+1)a^n} \text{ approximately.}$$

$$\frac{1}{\sqrt{5}}=\frac{1}{5}\sqrt{5}=\cdot 44721$$

$$\sqrt{\cdot 002}=\frac{1}{10}\cdot\frac{1}{\sqrt{5}}=\cdot 044721$$

$$\frac{5+\sqrt{5}}{5-\sqrt{5}}=\frac{(5+\sqrt{5})(5+\sqrt{5})}{(5-\sqrt{5})(5+\sqrt{5})}=\tfrac{1}{2}(3+\sqrt{5})=\tfrac{1}{2}\times 5\cdot 23606=2\cdot 61803$$

$\sqrt{6+2\sqrt{5}}=\sqrt{x}+\sqrt{y}$. See H. Smith's Alg., p. 226, theorem II.

$\therefore\ 6=x+y$ and $2\sqrt{5}=2\sqrt{xy}$

$36=x^2+4+y+y^2$ and $20=4xy$

$\therefore\ 16=x^2-2xy+y^2$ or $\pm 4=x-y$

$\therefore\ \sqrt{x}+\sqrt{y}=1+\sqrt{5}=3\cdot 23606.$

3. (*a*) Taking 4% per annum = 2% half-yearly.

$$A=1000\left(1+\frac{2}{100}\right)^5$$

$$=1000\left\{1+5\left(\frac{2}{100}\right)+10\left(\frac{2}{100}\right)^2+10\left(\frac{2}{100}\right)^3+\text{etc.}\right\}$$

$$=1000\left\{1+\cdot 1+\cdot 004+\cdot 00008+\text{etc.}\right\}$$

$$=1000\times 1\cdot 10408=\$1104.08.$$

(*b*) Discount $=\dfrac{7\frac{1}{2}}{300}$ debt $=\dfrac{1}{40}$ $\therefore$ interest $=\dfrac{1}{39}$ per quarter

$=\dfrac{4}{39}=10\cdot 25+\%$ per annum.

N.B.—When interest $=\left(\dfrac{a}{b}\right)$ principal, disc't $=\dfrac{a}{a+b}$ (debt).

See McLellan's Exam. Papers, p. 220, and Key.

4. Book-work.

$$£37\tfrac{1}{2}\times\frac{40}{9}\times\frac{x}{100}=\$181\tfrac{1}{2}.$$

$$\therefore\ x=108\frac{9}{10}\text{ premium.}$$

5. Expression $\{bc+a(b-c)\}\{bc-a(b-c)\}=b^2c^2-a^2(b-c)^2$.

and $-36=-36$.

6. (2) Expression $=\dfrac{x^4-2x^2+1}{x^4-1}-\dfrac{x^2}{x^2+1}$

$$=\frac{x^2-1}{x^2+1}-\frac{x^2}{x^2+1}=-\frac{1}{x^2+1}.$$

7. $(a+b)(a-b)$

$(a+b)(b+c)$ are the factors of the first two expressions

2nd Exp. $=a(b-c)^2+b(c+a)^2+c(a+b)^2=(a+b)(b+c)(c+a)$.

3rd Exp. $=(a+b)^3-2b(a+b)^3+c(a^2-b^2)$

$=(a+b)\{(a^2-b^2)+c(a-b)\}=(a+b)(a-b)(a+b+c$

$\therefore$ G.C.M. $=(a+b)$ and L.C.M. $=(a+b)(b+c)(c+a)(a-b)(a+b+c)$.

8. (1) $x=1$.

(2) $\dfrac{1}{(x+3)(x+2)}+\dfrac{1}{(x+1)(x+2)}-\dfrac{1}{(x+2)(x-1)}=0$

Divide through by $x+2$ $\therefore\ x=-2$,

also $x^2-2x+-7=0$, whence $x=1\pm 2\sqrt{2}$.

(3) $\frac{2}{x}-\frac{3}{y}=4$, and $-\frac{3}{x}+\frac{2}{y}=2$

$\therefore \frac{2}{x}+\frac{2}{y}=-1-12$ etc. $\therefore x=-\frac{5}{14}, y=-\frac{5}{16}$

$x=y=0$ are the other two roots.

(4) $y(x-z)=18 \quad \therefore x-z=\frac{18}{y}$

$(x-z)^2=4y^2 \quad \therefore x-z=\pm 2y \quad \therefore y=\pm 3$

$\therefore x-z=\pm 6$ and $x=z\pm 6$.

From 3rd and 2nd $z^2+8=4y^2-2xy$, substituting for x and y we get the value of x and y.

9. A contains $\frac{2}{5}$ water and $\frac{3}{5}$ wine; B $\frac{3}{10}$ water, $\frac{7}{10}$ wine.

Let x and y= quantities drawn from A and B respectively,

$\therefore \frac{2}{5}x+\frac{3}{10}y=5, \ \frac{3}{5}x+\frac{7}{10}y=11$

whence $x=2$, $y=14$.

10. Join FG, then $FG=BC=AE$. And AFG is the $\triangle$le formed by AE, AF, AG, and it is $=\triangle FGC=\triangle AEB$.

Examination Questions.

PROMOTION EXAMINATIONS—November, 1881

COUNTY OF LINCOLN.

2ND CLASS TO JUNIOR THIRD.

ARITHMETIC.

Time—1½ hours.

1. Write in figures:—Seventy thousand and sixty-two; four hundred thousand five hundred and eight; forty-seven thousand four hundred and seventeen, and two hundred thousand and twenty-five.

2. A man sold a house for $6,248, a carriage for $175, seven tons of hay at $14 a ton; how much money does he receive?

3. If a boy earn 75 cents every day and spend 47 cents, how much money will he have at the end of 365 days?

4. A man sells his butter at the market for 237 cents, his eggs for 175 cents, his apples for 437 cents, his potatoes for 770 cents and his chickens for 58 cents; he then spends 1287 cents of his money for clothes; how much has he left?

5. Work the following correctly:—$439+17+4850+68+336+5500+772+8$; also $43600-991$, and 4050×4050.

Value—Ten marks for each, and ten marks additional for neat work.

SPELLING.

Time—1 hour.

1. Very busy planting roots, fruits, flowers.
2. Laughing, crying, quite afraid.
3. A great deal to learn to wear clothes.
4. He asked in shrill, piercing tones for a piece of meat.
5. The county of Norfolk in England.
6. In a dreadful rage he tried to seize Willie.
7. Sugar plums, a guard chain and some new music.
8. He managed to crawl easily, slowly and steadily.
9. Opening the door she saw a bird with soft, yellow feathers.
10. Enemies and friends happened to meet together.
11. She snipped off ribbon enough with her mother's scissors.
12. They buried him for he was dead already.
13. Ascending and descending the tall chimney.
14. She never lost her presence of mind.
15. He walked off coolly and leisurely.
16. He attracted his attention, fully believing in his power.
17. The weight of his soaked clothes completed his distress.
18. Men imagine they hide their thoughts, but God knows them.
19. He was touched at a scene of such emotion and pleasure.
20. In fifteen minutes they separated on their several errands.
21. A wearisome job for robust, healthy boys.
22. He threw off his clothes, jumped in and saved him.
23. A small country village near the wonderful city of London.

Value—50; 2 marks off for each mistake in spelling or use of capitals. Pupils will write but once, and the teacher will dictate slowly and distinctly.

READING.

Value—50; 35 marks being given for correct reading, and 15 for a reproduction in the pupil's own words, of the lesson on "The Best Fun," no previous preparation being allowed.

WRITING—Value, 30.

The teacher will cut off the papers in each subject as they are needed.

JUNIOR THIRD TO SENIOR THIRD CLASS.

SPELLING.

(Not to be seen by pupils.)

Time—40 minutes.

1. Nothing but repulses, accompanied by abuse.
2. Two mattresses and an earthen pitcher of vinegar.
3. His gratitude guessed her taste in an elegant basket.
4. He could scarcely keep his countenance during the harangue.
5. The marvellous work of art made a great sensation.
6. To my despair, the light suddenly disappeared.
7. An immense ocean covered with innumerable islands.
8. Tell me what I ate this morning for breakfast.
9. They seized him and clipped off both his ears.
10. So famed for his talent in nicely discerning.
11. The opportuity of pursuing a liberal course of study.
12. Tumbling and peeling the skin off their shins and knuckles.
13. Completely deceived and unconscious of their situation.
14. He conceived a new and original method.
15. The spectators rewarded him liberally.
16. Segacity, docility, benevolence, fidelity and attachment are qualities in the dog.
17. Nearly immersed and unable to extricate itself.
18. The final suppression of the Scottish rebellion.
19. He fought desparately for some minutes on the opposite side.
20. Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday.

Value—50; 2 marks off for each mistake. Pupils to write but once; teachers to read slowly and distinctly.

READING.

Value—50; 35 marks for correct reading, 15 for a good reproduction in pupil's own language of the lesson on "Brave John Maynard."

WRITING—Value, 40.

GRAMMAR.

Time—1 hour.

1. What part of speech is each word in the following passage: (The word *the* not counted.)

He made his arrangements in the night and began very early the next day. He instructed the laborers and they came at four o'clock in the morning. They set to work and the thing was soon done.

2. Write six sentences and draw a line under that part of each that is called the predicate.

3. Write a description of your school-house. Try to fill ten lines of your paper with it.

Value—1, 32; 2, 12; 3, 16; ten remarks additional for neat paper. Value of last question includes spelling, correctness and general fitness of language.

GEOGRAPHY.

Time—1½ hours.

1. Give the boundaries of the township you live in.

2. Name the province you live in, and name separately the other provinces of Canada, showing which lie east and which west of your own.

3. Name the land lying east of the Pacific Ocean, and that lying west; through what must you pass in sailing from the Pacific into the Arctic Ocean?

4. Name six peninsulas in Europe and name the waters that surround them.

5. Name three large rivers in each of the continents of North America, South America, Asia and Africa, and name the waters each river flows into.

Value—1, 6; 2, 1+7+5; 3, 4+4+2; 4, 6+12; 5, 24. Ten marks to be deducted for lack of neatness.

ARITHMETIC.

Time—2 hours.

1. Write in figures six hundred millions four thousand two hundred and fifty-eight, and forty millions twenty-eight thousand and nine.

2. How many times can you subtract 1,482 from 25,574?

3. By dividing 42 into a certain number I get a quotient of 375 and a remainder of 16; into what number did I divide?

4. A man sold 46 head of cattle at $33 a head and 25 horses at $135 each; he paid $3,500 of the money for a house, and with the rest bought flour at $6 a barrel; how many barrels did he buy?

5. How many dozen of eggs at 12 cents a dozen must be given for 4 boxes of raisins, each containing 15 pounds, at 15 cents a pound?

Give the reason for every step in the foregoing question, either on the blackboard or on paper.

6. Multiply 400,620 by 400,620.

7. A man has 3 ten dollar bills, 7 fives, 9 fours, 14 tows and 36 one dollar bills. He pays $75 for board and pays for 13 sheep at $4 each; how much money has he left?

Value—10 each; ten marks additional for neat work. Full work required.

The teacher will cut off the papers in each subject as they are needed.

THIRD TO FOURTH CLASS.

SPELLING.

(Not to be seen by pupils.)

1. The scene of an Indian legend.
2. They were drawn irresistibly into the smooth, treacherous current.
3. Through vigorous exertion they might reach the bank, though perilously near the cataract.
4. They purchased a cheese-toaster, a saucepan and a green baize curtain.
5. The Indian had some superstitious, heathen notion.
6. The excitement seemed to give new energy to his sinews.
7. They related the catastrophe of their pilgrimage.
8. A complete bridge is made in January or the beginning of February.
9. Frantic gesture appealing for aid.
10. As he rightly conjectured, they were totally unconscious.
11. Commemorate the heroism of Captain Baker, who sacrificed his life.
12. Having previously reloaded my double barrelled gun.
13. Their teeth glistening and their eyes glittering.
14. The men yawned and stretched themselves violently.
15. A determination which she resolutely maintained.
16. With fiery valor they vigorously attacked their assailants.
17. Triumphant yet dignified expression on the Governor's countenance.
18. The most interesting feature of the exciting scene.
19. Threats, imprisonment, scourge and chain.
20. An illustration of a wise and merciful arrangement.

Value—50; two marks off for each mistake.

READING.

Value—50; according to pronunciation, fluency and expression.

WRITING—Value, 40.

GRAMMAR AND COMPOSITION.

Time—2 hours.

1. In the following sentences show the subject, the predicate and the modifiers of the subject, each one separately:

Herbert's quick eye soon caught sight of him.
Now commenced an exciting race for the prize.
On the first of the month there was a heavy rain.
Saul of Tarsus, the apostle of the Gentiles, was also called Paul.

2. Parse: On such a night the sea engulfed my father's lifeless form.

3. Change the following nouns to the plural form:

A boy's fault.
A man's hat.
The deer's horn.
The church's duty.

4. Combine the following into a continuous passage:

Sugar is a sweet substance.
It is used largely for food.
It is obtained from the juice of a plant.
This plant grows in the West Indies.
It grows to a height of ten or twelve feet.
It is called sugar cane.

5. Improve the following: A waggon has 4 wheels and they are made of wood. You can ride in a waggon.

Value—1, 12; 2, 18; 3, 8; 4, 12; 5, 10; ten marks additional for neat paper.

GEOGRAPHY.

Time—1 hour.

1. Name the capes along the east coast of America, beginning at Cape Horn. No mark unless given in the order required.

2. What and where are Vancouver, Bell Isle, Saskatchewan, Lima, Fundy, Dover, Crimea, Appenines, Indus, Himalaya.

3. What products are obtained from the following countries: China, Hindostan, Russia, Italy, Brazil, Ontario.

4. Name the water a ship must sail through in touching at the following places: Toronto, Kingston, Quebec, St. John, Nfld., London, Eng., St. Petersburg.

5. Tell what you know of the Dominion of Canada in regard to—

(1) Its position;
(2) Its provinces:
(3) Its cities;
(4) Its rivers;
(5) Its lakes.

Value—1, 6; 2, 20; 3, 12; 4, 15; 5, 17; ten marks additional for neatness.

ARITHMETIC.

Time—2 hours.

1. What will it cost to ditch a road a quarter of a mile long, at 40 cents a rod?

2. If there are 42,438 acres in Clinton township and 47,496 acres in Gainsboro', how many square miles in both townships?

3. How many yards of cloth, worth 5 shillings a yard, can be bought for £40, 10*s.*, 6*d.*?

4. Bought 6 bush., 2 pecks, 1 qt. of wheat for $25.20, and sold 3 bushels, 3 pecks, 2 quarts for $7.60; what shall I sell each quart of the rest for so as to lose nothing?

5. A farmer bought 17 acres, 2 roods, 35 sq. rods, 25 sq. yards of land from one man, and 10 acres, 1 rood, 20 sq. rods from another; he then sold 15 acres, 2 roods, 17 sq. rods, 29 sq. yards to a neighbor; how much land has he left?

6. Give three numbers that are measures of 12; also give three numbers that are multiples. Give a common measure of 8 and 12; also a common multiple.

Value—1, 10; 2, 10; 3, 10; 4, 15; 5, 15; 6, 10; ten marks additional for neat work. Full work required.

FOURTH TO FIFTH CLASS.

GRAMMAR AND COMPOSITION.

Time—two Hours.

Fourth Book page 140, from "He seized the person of the king," to "ill prepared for a fresh campaign."

1. Write out each proposition separately, stating its kind and relation.

2. Write a separate list of each kind of phrase in the passage, stating its kind and relation.

3. Analyze: *Cruelties*, of *which* he *had set* the example, *were carried* to *so extravagant* an extent as *to drive* the Mexicans into revolt.

4. Parse the italicised words.

5. Change the following into well constructed sentences, forming a continuous narrative:

Tea is the dried leaf of a shrub. This shrub grows chiefly in China and Japan. It is an evergreen. It grows to the height of from four to six feet. It bears beautiful white flowers. These flowers resemble white roses. In China there are many tea farms. These farms are generally of small extent. They are situated in the upper valleys. They are situated on the sloping sides of the hills. In these places the soil is light. It is rich. It is well drained. The plants are raised from seed. They are generally allowed to remain three years in the ground. A crop of leaves is then taken from them. The leaves are picked carefully by the hand.

Six marks additional for neatness. In the last question, note is to be taken of spelling, punctuation, grammar and harmony of construction.

Values—1, 10 ; 2, 10 : 3, 12 ; 4, 12 ; 5, 20.

GEOGRAPHY.

Time—one Hour.

What are the chief exports of the following countries: Norway and Sweden, South Australia, Peru, Southern States, Manitoba, Hindostan, England, France?

2. Name all the islands and cities you know that are crossed by the equator.

3. Give the boundry of the north temperate zone and its width in miles. What portions of Europe, Asia and Africa are included in it?

4. On a coasting voyage from Halifax to New Orleans, name the towns and cities possible to touch at, and the commodities likely to be traded in.

5. Where and what are: Auckland, Cotopaxi, Montenegro, Florence, Portsmouth, Grampians, Ghauts, Cashmere, Yokohama, Brisbane.

6. Draw a map showing Manitoba and the Northwest Terriotry westward to the Rocky Mountains. Mark the principal rivers and towns.

Eight marks additional for neat paper.

Values—1, 16 ; 2, 6 ; 3, 5+5 ; 4, 12 ; 5, 10 ; 6, 8.

ARITHMETIC.

Time—two Hours.

1. Find the value of ·00185 + ·07 ÷ 3·024.

2. A field contains 10 acres, 35 square rods ; its length is 15 rods, 4 yds., 2 feet ; what is its width?

3. What is the value of 21 ac., 3 r., 13 sq. rods of land at $67.75 per acre?

4. A cistern 4 feet deep, 5 feet long and 3 feet wide, contains 3,750 lbs. weight of water. If a gallon of water weigh 10 lbs. how many cubic inches in a gallon?

5. What will it cost to paper a room 16 feet long and 14½ feet wide with paper at 75 cents a roll, each roll covering 50 square feet ; deducting two windows 7 ft. by 2½ ft. and a door 7½ ft. by 3½ ft.

6. I gain $2.50 by selling 5 bushels of clover seed at the rate of 62½ cents for 8 lbs. ; What did it cost me per bushel?

7. A can do a piece of work in $\frac{5}{8}$ of a day, B in $\frac{7}{8}$ of a day, and B and C in $\frac{3}{4}$ of a day ; in what time could A and C do it ;

8. Find the interest on $328,500 at 5 per cent. for 200 days.

Values—10 each. Full work required.

HISTORY.

Time—one Hour.

1. Describe the reign of Elizabeth and the principal persons connected with her government.

2. What are the necessary steps to be taken before a law is put upon the statute book in England or Canada?

3. Describe the events that led to William III. becoming king of England.

4. To what does the Yorktown celebration, recently held in the United States, refer Describe briefly the war which it closed.

5. What was the beginning of parliament in England? What does parliament now consist of?

Values—10 marks each.

SPELLING.

(Not to be seen by pupils.)

1. He, burning for vengeance, retired with his nephew to his principality.

2. Opposite this magnificent array of foreign auxiliaries were marshalled three native columns of miscellaneous forces.

3. This unparalleled instance of undaunted valor dismayed the enemy.

4. He flourished a whip professionally and drove a swaggering, rakish, dissipated London coach.

5. After a long time had elapsed, her indomitable courage was suitably rewarded.

6. A permanent state of hostilities and massacres was established, independent of peace or war at home.

7. They quieted their consciences by assuming the character of dispensers of poetic justice.

8. Nothing occurred to disturb the hunter, who was quietly and busily engaged in household operations.

9. When the disembarkation was completed, General Brock sent forward a detachment of Indians as skirmishers.

10. He then, in appropriate terms, which would have done credit to a legislative assembly, proceeded by beautiful metaphors and a narration of facts, which I can only inaccurately repeat, to explain the gradual and continuous decline of his people.

Values—50, 3 marks off for each mistake.

READING—Value, 50.

WRITING—Value, 40.

Practical Department.

TEMPERATURE, VENTILATION, SEATING, AND PROPER POSITIONS IN THE SCHOOL-ROOM.

BY JAMES L. HUGHES.

What can the teacher do in order to promote the health of his pupils while they are engaged in studying in the school-room? However great his responsibility may be in regard to the intellectual culture of those in his class, it is certainly not greater than that which devolves upon him in connection with their physical well-being. He can do much to prevent permanent injury to their bodies by the constant observance of a few simple rules, which are based on common sense, and a slight knowledge of the structure of the human frame and the functions of the vital organs. While the whole system is specially susceptible during the formative period of youth, the organs most likely to receive direct injury in the school-room are the brain, the eyes, the lungs, and the heart. The brain is injured by long continued strain without interruption or sufficient variation ; the eyes, by defective lighting, by being brought too close to the work, and in some cases by sitting too far back from the black board ; and the lungs by lack of ventilation, and by the contraction of the chest owing to curvature of the spine and the improper position of the shoulder blades. To avoid these results, the teacher must carefully attend to four things :

1. The temperature of the school-room.
2. The ventilation.
3. The comfortable seating of the pupils.
4. The position of the pupils under all circumstances.

1. *Temperature.*—This should be about 65° F. The feet should be warm. If the heating is done by a stove, it should be placed near the door, and a casing of tin or zinc should protect the pupils near it from excessive heat.

2. *Ventilation.*—Summer ventilation is easily secured. Winter ventilation is best obtained by conducting the pure air from the outside directly to the stove or furnace by means of shafts, and causing it to circulate through the room by having escape flues for foul air on the side of the room farthest from the stove. Pure air may be admitted through windows, by fixing an upright board about twelve inches wide on the window-sill inside the sash, so that when the sash is raised a few inches, the air from the outside does not flow straight into the room, but is turned upwards by striking the board and does not cause a draft. The same result may even better

be obtained by making a board to fit under the lower sash, when it is raised. This causes the air to come in between the upper and lower sashes, and gives it the desired upward tendency. Drafts must be avoided, and if there is no other way of securing pure air but by opening the windows, the pupils should march or exercise freely while the windows are opened far a few minutes.

3. *Seating.*—The bodies of children are often distorted through their being compelled to sit at desks which are too high or too low. A grievous error is sometimes committed by fixing the seats too far away from the desks in front of them. This compels the child to lean forward, and prevents resting the back. Little ones are sometimes injured in the thighs and spinal columns by being placed on seats which are so high as to prevent their feet from resting on the floor.

4. *Positions of Pupils.*—Incessant watchfulness is necessary to prevent the taking of improper positions by the pupils. The following hints will aid in correcting many errors :

(a) Position while Reading.—(1) While sitting : heads erect, shoulders back, backs resting against the backs of the seats, both feet resting on the floor, books resting on the desks at a convenient distance from the pupils, and supported by both hands so that the page would form a right angle with a line drawn from the eye. This position secures the comfort of the body, and keeps the book at a proper distance from the eye. (2) While standing to read : head and shoulders as before, body resting on both feet, book in *left hand only.* No position could at the same time do more to curve the spine, contract the chest, and injure the eyes, than that too often taken in school by holding the book in both hands and bending the head and shoulders forward.

(b) Position while Writing, Drawing, or using Slates.—Different opinions are held as to the pupil's position in relation to the desk while writing. Some teachers prefer the side, some the front, and some the diagonal position. All agree, however, that the feet should be firmly planted on the floor *in front* of the body, not doubled under it as is frequently the case, and that the head should be erect, the chest forward, and the upper part of the body steadied by placing the left hand on the desk. Every pupil needs to be constantly watched in order to prevent stooping over the desk.

(c) Position while Standing in Class.—Pupils are frequently allowed to lean in ungraceful postures against the wall or the desks, when called out in a class. Such pupils acquire careless habits, and lose to a greater or less degree the erectness and compactness of form which are so essential to health and gracefulness. Whenever a pupil stands he should stand on both feet. The habit of standing on one foot frequently leads to curvature of the spine. It is not well for pupils to stand too long at a time. Indeed no exercise or study should be continued long without a change.

(d) Position while Listening.—While pupils are listening to explanations by the teacher, or while following the teacher on a map or black board, they should sit with backs against seats, feet on the floor, and arms at the sides, with hands resting on the laps in an easy and graceful position. Folding the arms on the breast is objectionable, as it tends to round the shoulders, and would be a most improper position for either ladies or gentlemen to assume in society. Folding the arms behind is less objectionable.

(e) Position while Marching.—Never let the pupils walk on their toes, and never allow them to march with their hands folded behind.

LESSONS ON CHEMISTRY.

I.

1. All things visible are composed of **Matter**, which is capable of assuming three different states or conditions, namely—the solid, the liquid, and the gaseous form. It possesses different properties, as color, hardness, taste, divisibility, etc. Let us notice especially that it fills space and has weight. We measure the quantity of matter, that is its *mass*, by its weight which is invariable for the same quantity of matter, while the space it occupies, that is its *volume*, may vary very considerably. Most other properties admit of some sort of change or variation, but the science of chemistry rests on the foundation fact that matter is indestructible by any means known to us, and that its weight is unalterably the same and serves to measure the amount of matter present.

2. Matter is not continuous throughout the substance of any bodies known to us. Most bodies are plainly full of pores, and every substance may be forced into less space by cold or pressure, or expanded into a greater volume by the application of heat. We are unable to explain these facts except on the supposition that bodies are built up of a vast number of minute parts, capable of moving nearer to each other under the influence of cold or pressure, and thus causing the whole body to contract in size, like a regiment closing up its ranks ; also capable of receding from each other when heat is applied, and thus causing the body to occupy more space, like a regiment with its soldiers spread out in open order. These minute particles of any substance are called **Molecules**, which may be defined as the smallest particles of a body that are capable of separate, independent existence, but incapable of further subdivision without a change of properties.

3. Matter may be subjected to two different kinds of change or variation, namely—chemical and physical. A physical change affects matter in the mass ; a chemical change alters the molecule. Though it is sometimes difficult to distinguish these changes rigidly, yet it is not difficult to convey a clear, general idea of the kind of observations with which the chemist has to deal. Molecules are conceived by the chemist to be collections of still more minute portions of matter called **Atoms**. Whether each atom is in itself an aggregate of smaller particles, or whether it is in its very nature indivisible, are questions upon which the chemical theory has no hold. The chemist cannot break up an atom of carbon or of oxygen any more than the astronomer can break up the planet Mars or Jupiter. The absolute weights of atoms have not yet been ascertained. But chemists have discovered how many times heavier each elementary atom is than an atom of hydrogen. Thus we know how many times heavier an atom of carbon is than an atom of hydrogen, namely, about twelve times. We can prove that an atom of sulphur is about thirty-two times as heavy as an atom of hydrogen. The ratio of the weight of its atom to that of hydrogen is called the **Atomic Weight** of a substance. The ratio of the weight of its molecule to that of the hydrogen atom is called its **Molecular Weight**. These atomic and molecular weights have been determined by multitudes of careful experiments, involving great labor and a skilful comparison of results. The evidence can only be understood by an accurate acquaintance with the details of the very numerous chemical processes from the consideration of which they are derived.

4. Chemistry deals with the changes produced among the atoms composing the molecules of bodies, which changes result from a peculiar, and very powerful influence called the *Chemical Force*, *Chemical Affinity*, or *Chemical Attraction*. The similar particles of a mass of matter are held together by the force of cohesion ; the atoms of a molecule, and the single molecules of a compound molecule, are bound together by chemical force. The study of this chemical force, its effects, and the laws that govern its action, constitute the special province of chemistry. It is *the aim of the chemist* to examine the properties of all the different substances that occur in nature so far as they act on one another, or can be made to act on one another, so as to produce something totally different from the substances

themselves. The chemist examines the circumstances under which such changes occur, and attempts to discover the laws upon which they are based. Experiment is the fountain-head of all our chemical knowledge, and every student of the science should strive to acquire an accurate acquaintance with the experimental method of investigation and a clear idea of the method of induction founded upon it. Practical Chemistry explains the various experimental methods and appliances used, and Theoretical Chemistry discusses the truths which may be deduced from the results. We have to learn how to conduct our experiments successfully, and secondly, we have to learn to study the experiments so carefully that we may observe everything about them, and find out all that can be known by correct reasoning from what they teach us.

5. It is the distinctive character of the chemical force to produce a permanent change in the properties of bodies, while their weight continues exactly the same. Weight is the only property in which the compound is identical with its constituents. It is the peculiar and characteristic mark of chemical combination that substances acquire new properties on combining with one another, their weight remaining unchanged. Thus we may by heat convert ice into water, and water into steam. But as soon as the heat is removed, the steam relapses into water, and the water is frozen into ice. The changes are only temporary. There is no alteration of chemical properties. Each minute particle of ice, water, or steam has retained all the same essential properties, has contained the same substance, each molecule made up of the same three atoms, namely—two atoms of hydrogen firmly bound by the chemical force to one atom of oxygen. The heat has varied the physical form of the water without altering its chemical qualities. It has merely driven the molecules farther apart, in opposition to cohesion; the molecules themselves have been entirely unchanged. But when the chemical force comes into play, as when fine iron filings are heated along with finely powdered sulphur, a change of unique character ensues. There is a complete change of chemical properties and atomic constitution. The former properties of the constituents disappear, and with the advent of the new compound, new properties make their appearance. The metallic lustre, magnetism, malleability, etc., of the iron vanish, along with the pale yellow color, the crystalline appearance, glassy aspect, etc., of the sulphur. The dark, porous mass formed by their union, resembles neither iron nor sulphur, and has a set of properties distinctly its own, not borrowed from either of its constituents. Notice carefully, however, that its weight is the sum of those of the iron and the sulphur, also that though we grind it into the finest powder, we cannot by mechanical means recover the iron and sulphur again in the separate state. Similarly, if white mercury and yellow sulphur be heated together, they combine and produce bright scarlet vermillion totally different from either in properties and appearance, but precisely the same in weight. No way is yet known of predicting what these new properties will be. We can only ascertain them by our method of experiment. No amount of abstract reasoning before the actual trial could inform us that two intensely poisonous substances like chlorine and sodium would produce common salt, not only harmless but actually necessary to life; that the air we are breathing would contain the elements of a deadly poison, namely, nitric acid; that sugar would be found to be entirely composed of charcoal and the elements of water; or that three harmless elements like carbon, hydrogen, and nitrogen would combine to form prussic acid (HCN, hydric cyanide), one of the most formidable poisons known.

6. The chemical force frequently alters the physical properties, as color, taste, smell, temperature, or volume. It often changes the physical form. Two gases may produce a liquid or a solid, two solids a liquid or a gas, two liquids a gas or a solid, etc. The only property which chemists have found absolutely unchangeable is the weight. In every instance the weight of the compound is the same as that of all its materials weighed together. Thus we see the first-rate importance of the *Chemical Balance*, the best of which are now constructed so as to turn with less than one millionth part of the substance weighed. By combining the methods of reversal and substitution, with the method of vibration or oscillation, by which the excursions of the moving beam are accurately observed, the chemist can determine the true weight of a body with a very close approximation to accuracy. Light and electricity are often evolved as the result of chemical union or disunion. Heat is also commonly evolved or absorbed, that is the body grows hotter or colder than its constituents were previously to their combination.

7. The chemical force acts only at imperceptibly small distansce and between minute particles of different kinds of matter. This distinguishes it from the physical forces, which act through considerable spaces, as gravitation, between masses of matter, and matter either of the same kind or of different kinds, as cohesion and capillary attraction. It plainly follows that chemical action will be promoted by all circumstances and conditions that tend to bring the constituents together in a very fine state of subdivision, to shake the molecules and atoms apart, to bring molecule to molecule, or atom to atom. Hence pulverisation, solution, fusion, vaporisation, percussion, high temperature, and a powerful current of electricity, are means commonly employed to bring about a desired chemical combination or decomposition.

8. Chemical union takes place with the greatest ease and energy between those bodies which have the least chemical resemblance, which possess the most widely different propeities, as sulpher and mercury, nitric acid and copper. It always takes place between fixed, definite, unchangeable proportions by weight of the elements. This serves to distinguish a chemical compound from a *Mechanscal Mixture*, in which any ingredients may be chosen, and their proportions varied within all conceivable limits. The mixture will acquire no new chemical properties but will partake of all the its constituents, for example its specific gravity or comparative weight, and its color will lie intermediate between those of the ingredients. Fine sand mixed with pulverised sugar is both gritty and sweet. Brass, type-metal, solder, german-silver, bell-metal, fusible-metal, bronze, gun-metat, pewert, and our common coins are mechanical mixtures. They are alloys or mixtures of similar metals, not untied in any fixed, definite and invariable proportions by weight. Gunpowder is a mixture of nitre, sulpher and charcoal. It is characteristic of mechanical mixtutes that their ingredients can be separated by such simple means as solution, filtration, diffusion, and crystallisation. Thus take a little gunpower and place it in warm water; the water will dissolve out all the nitre. Filter the liquid and evaporate; the nitre will be deposited at the bottom of the evaporating dish. Now take the black powder left in the filter paper and put it in some carbon disulphide, a volatile liquid which will dissolve all the sulpher. Again filter and the charcoal alone will now be deposited on the paper, and in a few minutes the carbon disulphide will vaporise (N. B. The vapor is poisonous) and leave the sulpher on the dish. Again, take two or three grains of gunpowder and reduce to a fine flour. Place a little of this under the microscope, and the separate particles of carbon, nitre, and sulpher will be seen lying side by side, and not chemically combined. The explosion of gunpowder is the result of rapid chemical union. When iron filings and sulpher are ground together to a find powder, the mixture assumes a greenish tinge, and the elements are no longer separately visible to the naked eye. But a lens showes them lying disunited; a magnet stirred through the mixture will draw out the iron; carbon disulphide will dissolve the sulpher and let the iron fall to the bottom.

(To be continued.)

PRACTICAL HINTS FOR TEACHING PRIMARY CLASSES TO READ BY ANY METHOD.

BY JAMES L HUGHES.

II.

2. Let the pupils bring their slates to the reading class. "Activity is a law of nature." Children learn by doing. The surest way to be certain that their minds are occupied with what you are trying to teach, is to compel those minds to direct their fingers. If a boy's fingers are at work printing or writing, his own mind must guide them, and so his attention is made an absolute necessity. Too much dependence has been placed on the use of tablets in the past. The eye alone has been used to far too great an extent in learning reading as well as other subjects. The eye is undoubtedly the best gateway to the mind, but is not the most certain means of compelling the mind to take definite action. The teaching processes may be classified as follows :

1. Teaching by verbal explanation only.
2. Teaching by showing things already prepared, such as maps, charts, tablets, &c.
3. Teaching by allowing the pupils to look at work done in their presence.
4. Teaching by making each pupil do work for himself.

The last should be the foundation method of teaching every subject. The other methods should be subsidiary aids merely, used to render the last method as perfect as possible. They should be used for the shortest possible time, and to the smallest possible extent. When they have to be used teachers should remember that they are valuable in the inverse order to that in which they are stated. Showing a thing, is better than talking about it, making the thing in the presence of the class is infinitely better than merely showing it ; but the aim of all teaching is to enable the pupils to know and do for themselves.

It may be urged that in reading, the work of the pupil is not done with the fingers but with the eyes, and in oral reading with the vocal organs, and that consequently children do not need to use their slates. The reply to this is twofold :

1. The eye is compelled to act more critically by the use of the slate than in any other way.
2. The mind is compelled by the use of the slate to note carefully what the eye sees in order to be able to direct the hand in printing or writing.

These two reasons account for the well known fact that doing a thing once with the fingers by writing or otherwise, will make a more lasting impression on the memory than a dozen verbal repetitions. The slate should unquestionably be brought to the reading lesson in the primary classes, until the pupils have been made thoroughly acquainted with the elements they are to use in reading. Reliance on the printed tablet alone has done much to make the teaching of reading the stupefying process it too commonly, is and to produce the monotonous droning which is popularly known by the name of reading.

The following are some of the ways in which pupils may profitably use their slates in a reading class :

1. They may copy the words put on the board by the teacher. This should only be done at a very early stage, as it would afterwards occupy too much time. In more advanced classes the lesson may be copied after the pupils return to their seats. They should both write and print from the beginning.

2. The teacher should often sound words, and ask the pupils to print or write them on their slates. At first these should be only regular words such as cap, desk, step, slap, &c., containing no silent letters, but in a few weeks the little folks will be able to write harder words and mark the different sounds of the vowels, strike out silent letters, etc.

3. The teacher may write such words as ought, boat, lamb, sword, &c., and after pronouncing them, require the pupils to strike out the silent letters, and mark the vowels to show the correct sound. More difficult words may be treated in a similar way as the pupils advance.

4. The teacher may write words on the board and require the pupils to alter the marking so as to change the pronunciation of the words. Each pupil may then be asked to sound the word as he has it marked.

5. The teacher may write the beginnings and endings of words, as P——t, and ask the pupils to fill the vacancies with various letters properly marked so as to make as many words as possible. At first the spaces should be filled by a single sound, then two or more sounds may be called for as the class progresses.

The last four exercises enable the teacher to test thoroughly the progress made by the pupils in gaining a practical knowledge of the powers of letters, and will greatly facilitate their acquirement of a ready grasp of the sound of a word by a glance at its elements. These exercises may be made to have all the fascination of games for the pupils, and they enable them to learn the sounds of the letters in the only philosophical way in which anything can be learned ; by using them.

6. When a new word has been taught, the pupils should always be set to find how often it occurs in the lesson in hand. Pupils are sometimes asked to point out the word in as many places as they see it. Only one at a time can be tested in this way, and every pupil ought to act for himself. Let every pupil count as many of the new words as he can see, and write the number on his slate. Then let the one who saw the smallest number point them out, call on some one else to show more, and continue till all have been shown.

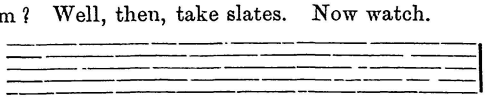
7. Each pupil may be required to write out a few words about some subject suggested by the teacher or one of the pupils, and to read what he has written. It is astonishing how very quickly pupils properly taught from the beginning will put words together to make little sentences. Such pupils never know when they began to write compositions.

TONE TALKS WITH THE TODDLERS.

BY MRS. G. RICHES, TORONTO.

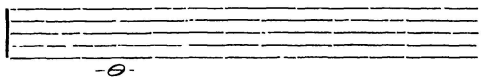
No. I.

You have all seen a pretty little pussy ; tell me what it said. That is right. It cried Me-yow, Me-yow ! If I had a little kitty in my table-drawer, would you like to hear it say Me-yow ? You would, and Willie would like to *see* it. I have not a pussy, but I can make on the board some queer little things that *sing*. Would you like to make them ? Well, then, take slates. Now watch.



What have I made, Johnnie ? A ladder. How many steps, Mary ? Five. Let us count together—one, two, three, four, five. These little fellows that we are going to make are like monkeys, great climbers, and the ladder is for them to sit upon. Have you all made the ladder ? Very good. Now make a short step *under* the ladder. That is for a queer little fellow who never climbs very high. Hold up your slates so that I can see the short step. All right. Now for

the little fellow that sits on the short step. Here he is,



See how he opens his mouth! He knows he couldn't sing *well* unless he opened his mouth wide. Make him on your slates, and then I'll tell you what he sings. Do, do, d—o. Sing together. Boys alone. Girls alone. Together. Thank you. When you sing *together*, you sing well, but this little fellow sings *alone*. How many of you can sing alone? Only Tom? Let me hear you, Tom. Do, do, d—o. That's splendid! Tom, I'm proud of you. Well, Willie, what is it? You want to sing alone? That's right. Sing loud, like a little man. Now Charlie. Now Mary. Very good.

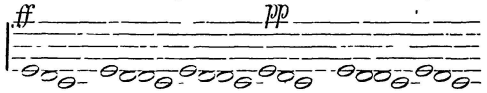
This queer little fellow has a dear little sister, and she is very fond of her brother, she stays near him. Shall we make her, too? Well, then, put her right above the short step, and *under* the first long step. What does she look like? A ball on a table. Fred says, and Annie thinks, she is like an egg on a shelf. Now listen to the little song she sings to her brother—Re, re, re; re, re, re. Class sing. Again. Once more. Now, we'll have a talk between the brother and sister. When I point to the queer fellow, sing what he says, and when I point to the sister, sing what she says: Do, do, do; re, re, re; do, do; re, re; do, re; do, re; re, do. The boys will sing what the brother says, and the girls what the sister says. Watch the pointer, or you will go wrong. Do, do, do; re, re, re; do, do; re, re; do, re. Willie and Minnie sing alone. Willie the do's, and Minnie the re's. Do, do; re, do; re, re, do. Thank you.

Now, we'll make a bold little boy, who always shouts out his own name. Put him on the first long step, and tell him that he *must* stay there, or you'll have to rub him out. Hear him cry out—Mi, mi, mi. You do the same. Once more. Sing now as I point—Do, re, mi, mi; mi, re, do, do; do, re, re, mi, mi; mi, mi, re, do; do, re, mi; do, re, mi; do, mi; do, mi; mi, do. Boys sing do, girls mi. Now watch my hand, when I close it, the boys are to sing do, and the girls mi. Thanks. When the queer little fellow and the bold boy sing together, do you like the sound? I'm glad you do.

Now our little friends are going to have a game of hide-and-seek, when they are hid, they call out la. Listen! Tell me who this is? (teacher sings, and the pupils name the notes as she sings them.) *La*. Yes, that is do. *La*, Willie says, that's the sister. Who's this? Mi. You are right? *La, la, la;* do, re, mi; *la, la;* do, mi. You see how nicely you can find them.

When pussy runs up stairs, does she make a great noise? No; she goes up softly. *P.P.* stands for pretty pussy, and when I write *pp* on the board, you are to sing softly, just like pussy running up stairs. Sing *pp* do, re, mi; do, mi; mi, re; re, do.

Frank and Fred run up stairs softly, too, don't they? No! How do *they* go up? Noisily. Fannie says they make a loud noise. Now we'll put down *F.F.* and sing as Frank and Fred go up stairs. Do, mi; do, mi, re; re, do, do. Shall we sing a song about pussy? Very well, then sing as I point first, and mind the *ff* and *pp*,



Willie sing it alone. Thanks. You all know "Ding dong bell.' Now, when I point to *mi*, sing the word "ding," when *re*, sing "dong," when *do*, sing "bell," and so on to the end. Very well done. Copy this little song on your slates, then put the names of our little friends on a line below; but, first, I must tell you a secret. These little creatures come from a country far away from here, where they do not spell as we do, and you must not laugh when I tell you the bold boy spells his name m-i, and the sister hers r-e, and the queer little fellow his d-o. So when you write their names, spell them as they do, and then they'll not be vexed.

HOW TO MAKE A CHILD WISH TO COME TO SCHOOL.

BY JOHN B. ADAMS, COOK'S CREEK, MANITOBA.

"A school," says Cousin, "ought to be a noble asylum, to which children will come with pleasure, and to which their parents will send them with good-will." Children do not like to attend school because they are happier elsewhere. Our grand aim then should be, if possible, to make them happier in the school-room than if they stayed at home. How is this to be done? Give them bright surroundings. The lives of the little ones should, if possible, be made bright, beautiful, and full of sunshine. Let the school-room be kept exquisitely neat. Adorn its walls with bright-colored maps and tablets, and a few carefully selected and neatly framed prints or chromos (or oil paintings if really meritorious). The latter should be placed there not only for decoration, but as illustrations of some subjects of instruction. Let a few flowers be grown in boxes, in summer, and a bouquet be placed upon the teacher's desk, and from the performance of such acts of love, the pupils will learn to love their teacher and their school.

Some one has said,—

> Give, oh, give me the man,
> Who sings at his work.
> He will do more work,
> And do it better.

Song lightens labor. Vocal music should form one of the branches of instruction. This, however, may not be possible, as the teacher may be unable to teach it. If he cannot sing or teach singing, this need not always prevent the pupils from singing, as often some of them can sing fairly or well. These can lead, and the teacher and school can join in. When the scholars evince signs of weariness, all work should be dropped, and they should be wakened up with a sweet, inspiring hymn or a merry, lively song. The children can be marched in and out, the school opened and closed, the copy-books distributed and collected, and much of the mechanical work can be done to singing.

Physical exercises should also be practised for a few moments, several times a day, especially when the children evince dulness or languor.

Many bright, lively children dislike school because they prefer play to work. This love for play, which is natural to all healthy children, often operates against the successful working of the school But it need not. It can be made a great help instead of a hindrance. It can be taken advantage of to make school pleasant. Encourage the pupils to get up games during recess and dinner hour. Let them be provided with bats, balls, swings, and gymnastic appliances, however rough and ready the latter may be. If these things cannot be obtained in any other way, let a subscription be taken up among the parents for the purpose, the teacher contributing liberally himself. He will be amply repaid for any little outlay he may make in this direction by the marked improvement which will be effected in the school. Children should have much physical and out-door exercise. This fact is beginning to be more generally admitted, but its importance is still under-estimated. It is said that the Duke of Wellington, when once looking on at the boys engaged in their sports on the play-ground at Eton, made the remark,—"It was there that the battle of Waterloo was won." It was the culture of the body that contributed greatly to the power and glory of ancient Greece and Rome. In these nations calisthenics were not left to boxers and drill sergeants only, but were a part of the regular school education. Orators, philosophers, poets, warriors, and statesmen received much of their training in the gymnasium. The blood was thereby made wholesome, the nerves healthy and strong,

the digestion sharp and powerful, and the whole physical man developed into the fullest health and vigor. Look at the achievements of the British army and navy. Their soldiers cannot be surpassed in toughness and endurance because they are fond of exercise, and love the fresh air. Great Britain is largely indebted to the foot-ball contests at Eton, the boat-races on the Thames, and the cricket matches on her downs and heaths, for the splendid dominions which she possesses in every quarter of the globe. "He morning drum-beat, following the sun, and keeping company with the hours, circles the earth with one continual unbroken strain of the martial airs of England." Why? Because her people cultivate self-reliance and their breeding develops endurance, courage, and pluck.

Children cannot be happy where they are not comfortable. For comfort a frequent change of posture is necessary. The young, when at play or when their time is their own, stand much more than they do at most schools. They should, therefore, stand when saying their lessons, and, if they wish, when learning them. They should not be allowed to lean over their desks. They should be taught to sit as upright as possible, especially when writing. Their shoulders should be well thrown back, their chest expanded, and their carriage erect. A few minutes' drill every day from the "Monroe Manual" will have a beneficial effect. Variety is the spice of life. At some lessons let the pupils stand, with their arms hanging by their sides; at other lessons, with their hands behind them; at others, with their arms folded before, and still at others, with their arms folded behind them. No lesson should occupy more than twenty minutes, and at each change of lesson there should be a change of posture or place. A change of room, where feasible, is a capital thing to relieve the monotony.

Some of the pupils may act as school-officers, whose duty may be to assist the teacher in the mechanical work of the school. They can assist him in marching the scholars in and out, in collecting and distributing writing materials, in the supervision of the children upon the play-ground, &c. The officers should be elected by their school-fellows, the absence of bad marks for at least one month preceding the election, being the qualification for office. The term of office should be short, so that as many as possible might have an opportunity of serving, and no one would have to wait too long for a chance of the distinction. An election of officers might be held weekly. The carrying out of methods such as these will interest the scholars in their work and in the good government of the school. It is a good idea to have a picnic once or twice a year. It helps by force of association to endear the little ones to their school, and creates a sort of *esprit du corps*, which may be turned to good account.

The monthly publication of marks in the newspapers stimulates to good conduct and industry. Have also a spelling and a reading match now and then, and publish the results with the names of the competitors in the public press. It is a good idea to form the school into a literary society for a few hours about twice a month. Let it elect its own president and secretary, and conduct its own business. However, the teacher should carefully watch its proceedings, and reserve to himself the power of vetoing. Readings and recitations from standard authors, discussions upon the meaning of passages in their productions, and original essays should form the order of the day. The members should also criticise each other's performances, pointing out their excellencies, and kindly drawing attention to their defects and suggesting remedies. Previous to the close of the meeting, the teacher should review everything that has been done. While the meeting is in progress, the younger children, who do not understand the subjects before it, and cannot therefore be expected to be interested in them, could be engaged with a box of toy letter-cards, which can be purchased from 60 to 80 cents, in some of the many letter or word games, such as "word-building," "out in the cold," "puzzle your neighour," "the travelling letters," "patchwork," "loto," "the spelling match," "syllabication," "letter-pool," &c. It may be argued that most school children are not sufficiently advanced to conduct literary discussions. They may be a little awkward at first, but, I believe, if they are properly trained, they will soon learn. Every school should have a library. Good wholesome literature should be placed in the hands of the young. Give them the works of Shakespeare, Ben Jonson, Sterne, Goldsmith—every boy and girl should read the "Vicar of Wakefield,"—Tom Hughes, Kingsley, Marryatt, Cooper, Dickens, Thackeray, and Walter Scott. Give them a taste for such reading, and they will have no wish to indulge in the trashy literature that circulates so freely. Their characters will be moulded by their reading. Above all, give them the Bible. Do not neglect religious teaching. Well spoke George Washington when he said: "Reason and experience forbid us to expect that national morality can prevail in the exclusion of religious principle."

"I prefer," said Dr. Arnold, "that my pupils should drink from a running stream rather than from a stagnant pool." The teacher should prepare each day's work carefully, in order that he may be able to stand before his classes fresh upon each topic, thoroughly master of it, and able to throw life, spirit and snap into his teaching.

Let the pupils go home at 3 o'clock p.m. instead of 4 for good behaviour, and when their work has been well done. This will be found to operate much better than keeping in for unlearned tasks, and with this stimulus they will do their best. At any rate, five hours a day and five days in the week is long enough for the school to be in operation. The Protestant teachers of the Province of Quebec, at a meeting held in Montreal, in 1876, were deliberately of this opinion. The arguments adduced in favor of the five hours system were convincing. It is supported by many of the very best practical teachers and many of the highest educational authorities. Wherever it has been tried, both in town and country, it has been eminently successful.

It is to be hoped that the day is not distant when all our schools will emulate the excellent example set them by Winnipeg and some other places in the matter of school-houses, school-furniture, apparatus, play-grounds, &c. The desks should be comfortable. They should be provided with foot-rests to protect the feet, as the air is always cold close to the floor. The seats should always have good backs. It is of the utmost importance that the school-room should be well ventilated with openings as near the ceiling as possible.

A pleasing manner is indispensable to the teacher. "Thank you, my dear," said Lundyfoote to the little beggar girl, who bought a penny-worth of snuff. "Thank you, my dear, please call again," made Lundyfoote a millionaire. Courtesy, refinement, and gentleness are as effectual in rendering the school-room attractive, and in winning the hearts of children as they are in promoting their possessors advancement in life. These qualities are too much neglected in the education of youth at the present day. They should certainly be imparted to the children. "Give a boy address and accomplishments," says Emerson, "and you give him the mastery of palaces and fortunes wherever he goes; he has not the trouble of earning or owning them; they solicit him to enter and possess." A good address can be best taught by example. The way to teach the young to be polite is to treat them with politeness. Every one should be as polite to a little child as he should be to the Queen. A teacher should not acquire his manner from the study of artificial rules of etiquette. His courtesy should spring from a good heart, and from a sincere and earnest wish to be agreeable to his fellow-creatures.

It should be like the oratory of the brilliant and genial Sheridan, of whom it has been written :

> "His wit in the combat, as gentle, as bright,
> Never carried a heart-stain away on its blade."

He should emulate in his every-day bearing the self-sacrificing and noble Sir Philip Sidney, the pattern to all England of a perfect gentleman, the hero that, on the field of Zutphen, pushed away the cup of cold water from his own fevered and parching lips, and held it out to the dying soldier at his side ! Shakespeare says :

> "A merry heart goes all the day,
> Your sad tires in a mile, oh !"

A teacher should cultivate a pleasant, cheerful, sunny, happy disposition. He must not carry any of his personal troubles into the school-room. His manner there must be pleasant and free from gloom of any kind. He must see the bright side of everything. Every thing has a bright side. Let the clouds hang ever so heavily, the sun still shines behind them. He must avoid all gloomy companions and sad and worthless literature. His recreative reading should consist of the works of Shakespeare, Swift, Dickens, Thackeray, Walter Scott, and Sydney Smith. For professional reading, the CANADA SCHOOL JOURNAL is indispensable. His temperament is greatly dependent upon his bodily health. If his health be vigorous, his spirits are elastic and buoyant. He should therefore take much exercise in the open air. One can get a good broad sweep of it on the prairies. The open air is *life;* the want of it, death. Lady teachers should do a little housework. The sleeping room should be light, large, airy, clean, and lofty. It is a very healthful exercise to sing and inhale lungfuls of breath frequently. Keep early hours, avoid everything indigestible, eat plain food, and have nothing to do with quack medicines. Rub the body into a glow after every bath. Night and morning, when undressed or half dressed, throw the arms and elbows back, in various ways, in such a manner as to open the chest, and fill the lungs with fresh air. Lady teachers will find it easier to swallow great doses of nauseous medicine than to perform these exercises, but the latter will do them far more good.

The teacher should fully appreciate the importance and dignity of his office. I consider it no disparagement to the pulpit to say that the profession of teaching is the highest and holiest in the world. The teacher has the honor to be the servant of the feeblest, the most inexperienced, and the most helpless; to stand, as it were, at the portico of the temple of God, guarding the house and keeping it from pollution. That was a beautiful saying of Dr. Dwight :—"He that makes a little child happier for half an hour, is a co-worker with God." A teacher should love his work, and overflow with a deep and burning enthusiasm. He should throw his whole self upon his work. He should pour into it the whole stream of his activity, all the energies of his hand, eye, tongue, heart, and brain. As a great writer, in speaking upon force of character, says :—"What you can effect depends on what you are. You put your whole self into what you do. If that self be small and lean and mean, your entire life-work is paltry, your words have no force, your influence has no weight. If that self be true and high, pure and kind, vigorous and forceful, your strokes are blows, your notes, staccatos, your work massive, your influence cogent—you can do what you will. Whatever your position, you are a power, you are felt as a kingly spirit, you are as one having authority."

Read before the Manitoba Teachers' Association and published at the request of the members.

Notes and News.

ONTARIO.

The attendance at the Ontario Business College, Belleville, during the months of November and December, was the largest the College ever had at that season. First class work will gain public confidence.

At an entertainment in connection with Tyrconnel public school, which was presided over by Mr. Butler, I.P.S., and was largely attended, Mr. James E. Orr, Principal, was presented with a copy of Worcester's unabridged dictionary and other gifts, in recognition of his talented and energetic services. Mr. Orr has been re-engaged with an increase of salary.

Mr. John Raine, of Carleton Place, for some years Master of the Perth Model School, has been appointed Principal of Tilsonburg public school, at a salary of $700. He will be assisted by Misses Abbott, Hamilton, Hillman and Caulfield.

Mr. William Callin succeeds Mr. William Lyle in the senior department, Shakespeare school, and Miss Kate McLellan has been re-engaged in the junior department. Mr. Lyle, who goes to Haldimand with the reputation of being a highly successful teacher, is to receive a much higher salary. The *Stratford Beacon* in noticing this change observes : "It might be worthy of notice that as soon as it was found that Mr. Callin was likely to be engaged, another of the applicants generously offered to teach for $50 less, but the trustees wisely concluded, not being auctioneers, that any man's services could not be worth more than he himself valued them at." The *Beacon* would have benefited the profession by giving the name of the generous applicant, as we hear a good deal about such self-abnegation lately. A list of these "bidders" would form an interesting "roll of honor."

Teachers are plentiful in supply ! Seventy applications were received by the Guelph School Board for vacancies in their schools ; for a vacancy in Northumberland county nearly one hundred applied, and for eight vacancies in the Almonte High and Public Schools there were one hundred and forty-one applicants ! For the Orillia School, seventy replied to the advertisement ! The result may be easily guessed at. Several school boards are cutting down the salaries, and many good teachers feel their positions insecure. The applicants are chiefly youths.

The new County Model School regulations are exercising School Boards sonewhat. In Lindsay and Goderich the members are doubtful whether the County Councils can reasonably bear the additional expense. In the latter town it was suggested to discontinue the Model School, but no decisive action was taken. The regulations causing this trouble are that the school boards concerned are required to furnish an extra teacher during the two sessions of four months in each year. An extra has also to be provided for Model School purposes. It is further ordered that the Master of the Model School shall have a first class certificate. It is also provided that the government grant shall be $150 per annum, and that the County Council are to furnish a like sum.

School hygiene is a subject much discussed at present, and necessarily so, because public opinion needs to be directed to its absolute enforcement. What will be thought of the following state of the school at Point Edward given by a correspondent to the Sarnia *Observer ?* "The present building is nothing more than a barn, and is not worthy of the name of a school-house. It certainly is a disgrace to our rising town. The inspector visited the school, and states that he cannot allow such a state of over-crowding to exist in so small a place, as it is very detrimental to the health of the children."

Mr. James Lumsden, of Omemee, has been appointed Head Master of Mitchell High School, at a salary of $800 per annum, in the place of Mr. O. J. Jolliffe, B.A., resigned.

The position vacated by Mr. Wm. Rothwell, B.A., in Brantford Collegiate Institute, has been accepted by Mr. I. J. Birchard, B.A. late Principal of Perth Collegiate Institute.

The Bowmanville Board of Education has decided to take no action at present on the separation of the High and Public Schools. The step was suggested by the Head Master, Mr. Wm. Oliver, B.A., on solid grounds no doubt.

The *Almonte Gazette* states that "the programme laid down by the Council of Education embraces far too many subjects." Query, how many of them may be omitted with advantage to the pupils ?

Mr. George Mulden, Head Master, Model School, Cornwall, has been re-engaged without solicitation.

The Guelph Board of Education has advanced the salaries of the teachers. Mr. McLeay's was increased by $50; Misses Budd, Aiken, and Cooley by $50 each; Miss Short by $25, and the teachers of 1st and 2nd books, $25 each. A male teacher is required for the senior third (boys) department at the Central school at a salary of $450. The amount paid hitherto in Guelph for High School salaries is $3,250, viz: Principal, $1,050; assistants—two males, $900 and $800, one female, $500. For Public Schools, $7,125, viz; males, fourth senior department, $600; fourth junior do., $550; third senior do, $500. Females, 1st and 2nd book, four teachers, each, $200; third junior, five teachers, each, $250; one senior, $300; fourth junior, $350; fourth intermediate, $400; fourth senior, $500. The proposed additions, together with the salary of the new teacher, will make the total amount of public school salaries for next year, $8,125. The teachers whose salaries were increased, were highly complimented by the Board, especially the Principal.

Mr. A. W. Guttridge, late Master of Perth Separate Schools, has been appointed Principal of the Separate School, Lindsay, at a salary of $500.

Mr. John Noble, Head Master of Newcastle Public School, has accepted the position of English Master in Brockville High School, notwithstanding a tempting offer by the Board of a liberal increase.

Miss Caughell, junior teacher, New Sarum Public Schools, was presented with a handsome ring and an address on the occasion of her leaving that school to take a place in Richmond school.

After the examinations in the Picton High School last month, the silver medals offered by W. J. Porte, Esq., and Mr. Murray, were presented to the winners; the former for general proficiency to Miss May Sawyer, and the latter for best entrance examination to Miss Helen May Merrill. The prizes which are very handsome and suitably engraved, being handed to the young ladies by Mrs. Merrill, wife of the Chairman of the High School Board, and Mrs. Ross, respectively. Mr. Dobson (Principal), Rev. J. F. German, R. A. Norman, Esq., Chairman P. S. Board, John Twigg, Esq., of the H. S. Board, and Mr. R. W. Murray, Principal of the Public School, gave short, appropriate addresses.

At the public examination held in the London South School last month, Mr. A. McQueen, Principal, and his staff were highly complimented for their painstaking labors in the cause of Education.

At the Brantford Public School Board meeting, held 7th ult., Dr. Harris highly complimented Mr. W. Wilkinson, the Principal, on his very satisfactory and detailed report, and remarked that the schools were in a better condition than ever before. There was a saving on salaries of $383 for the past year.

A parent in Bracebridge, indignant at a little correction given his son in school by Mr. Neilly the teacher, has been committed to trial at the next assizes for assaulting Mr. Neilly with a heavy walking-stick.

Rev. Father Stafford, of Lindsay, speaking recently of education in Europe, said that neither in England nor on the Continent had he seen the Schools so well supplied with maps, globes, and other school furniture, as in Ontario. In Rome he had a conversation with the Cardinal Prefect of the Propagandi, Cardinal Simeoni, who remarked that nowhere were the rights of Roman Catholics better recognized than in Canada, and that England was doing well everywhere for education.

The *London Free Press* advocates school decoration as a standing lesson of neatness and order, and asks: "What legislature will offer a premium—and it should be a good one—to the district maintaining the best appointed school-house with the most neatly ordered and most judiciously planted grounds?"

Mr. R. W. Hicks has been appointed Head Master of Madoc Model School, in place of Mr. Kirk, who goes to Cobourg, as already noticed in the JOURNAL.

When teachers are studying medicine and anatomy with a view to becoming doctors, it is not right to turn the school-room into a dissecting room; and it is decidedly objectionable to rob the neighbouring cemetery for subjects of study. Mr. E. H. Bailey, a teacher in Mount Forest Central School, is reported to have allowed his ardour in desiring to shine as a medico, to over-rule his discretion, and the indignation he has raised, as certain discoveries have brought matters to light, will not add to his peace nor permanence in his position.

Mr. Alexander, of Galt, has been advocating the "half-time system" before the trustees and teachers of London.

Mr. C. H. Scott, in an address to the Kingston Teachers' Association, showed that a person does not need to be an artist to teach drawing. All that was needed was a good use of the eyes.

Mr. Marling, H. S. I., has sent in his report of the London Collegiate Institute, which, generally, is satisfactory. The report concludes thus: "The Institute appears to be, on the whole, in a healthy condition, and a good spirit of work animates the majority of the pupils."

Toronto Public Schools closed December 22nd for Christmas vacation. The concluding exercises, which were witnessed by a large number of visitors, consisted of recitations and singing. On the black-boards some excellent specimens of maps and free-hand drawing were exhibited, which reflected the highest credit on the pupils. Certificates of merit for attendance and good conduct were presented to those entitled, and it is a pleasing fact to record that nearly three thousand certificates were issued, or about one certificate in every three pupils. The schools open again Monday, January 9th.

Miss Grant, teacher in Parliament Street School, Toronto, was presented, by the pupils and teachers of the school, at closing for the holidays, with a handsome silver cake basket and butter cooler. The presentation was made by Mr. R. T. Martin, and Rev. Mr. Cameron, on Miss Grant's behalf, thanked the donors in very appropriate words.

In Parkdale the distribution of prizes was quite an event, and the entertainment in connection was largely attended. Three of the assistant teachers are leaving the school, and the pupils of their respective classes presented them with handsome and suitable parting gifts. Miss Warwick received a silver spoon-receiver, and an address from the School Board artistically illuminated by Mr. Ellis, a member of that body; Miss Summerville was presented with a dressing-case; and Miss Dallis with an ink-stand.

The closing exercises in connection with Yorkville Public Schools, Mr. Hendry, Master; Riverside, Mr. Phillips, Master; S. S. No. 10, York, Mr. Hagarth, Master, were entered into heartily by trustees, parents, and friends, who evinced the greatest interest in the proceedings.

Mr. T. O. Steele, Principal of the Perth Public and Model Schools, was presented with a beautiful *escritoir* by the pupils of his class.

A feeling exists and seems to be growing in favor of introducing lessons on agriculture into the Public School programme. In order to teach even the elements, some important changes in the course of study will have to be made, not only in the Public Schools, but in the seminaries where teachers are being prepared.

Mr. W. W. Tamblyn, M.A., Head Master of Oshawa High School, has been re-engaged at his former salary of $1,200. Mr. Tamblyn is doing earnest work, which is highly appreciated in the town and its vicinity, and has secured for him many firm friends.

Mr. Sinclair, B.A., Head Master of the Sarnia High School, has been re-appointed at his previous salary of $1,000.

Mr. D. H. Lent has been appointed Principal of Burlington Public School. He has been a faithful and energetic teacher in the past, and we have no doubt of his future success in his present sphere.

The *Mail* observes:—"Speaking of the ingratitude of republics, a parallel case of the ingratitude of municipalities has just occurred in Huron. The Public School Inspector there (Mr. J. R. Miller), an able and energetic county officer, applied to be relieved from active out-door duty during the trying weather of winter, on account of a severe affection of his eyes, and that he be allowed to provide a substitute. The request was refused. A local paper says:—'Strange to say, the application for leave to provide a substitute was rejected both in committee and in council; and stranger still, the reason for the rejection appeared to be that Inspector Miller had been too assiduous and effective in his duties in the past. The action of the County Council in this instance is certainly not likely to incite county officials to work too hard in the time to come.'"

Mr. G. Cruickshank of Weston, has been offered the Science Mastership in the High School, Chatham.

Dr. Platt has resigned his position as Inspector of the Picton Public Schools.

At a very successful entertainment given last month in connection with Weston High School, Mr. G. Wallace, B.A., Head Master, the sum of $80 was raised, which will be appropriated to the scholarship and prize fund.

Mr. Thomas R. Clipsham, who is well known throughout the county of Peel, having for some time attended the Broddytown Public School, afterwards the High School, and, more recently was a student in Pickering College, distinguished himself in a heroic manner on the occasion of the fire in the College. By strenuous efforts and at great personal risk he succeeded in checking the ravages of the fire, and, with assistance, subdued it, but not until about $500 worth of damage was done. Were it not for these brave services it is more than probable the whole building would have been destroyed. As a recognition of his valuable services, the College Committee have voted him a year's tuition and board free, and presented him with a gold medal hung on gold swinging bars, enclosing his monogram beautiful executed. The inscription on the medal is: "Presented to Thomas R. Chipsham by the Managing Committee of Pickering College in acknowledgement of the heroic services rendered by him, October 27th, 1881, at the Fire which threatened the destruction of the College Building. Elias Rogers, Sec., John R. Harris, Chairman." The British American Assurance Co., through Robert McLean, Esq., their inspector, have sent Mr. Clipsham a letter notifying their appreciation of his brave conduct, and presenting him with a cheque for $150. The following words are extracted from the letter: "The noble sentiments contained in your reply are a credit to your head and heart, and cannot but find a hearty response in every rightly constituted mind."

NOVA SCOTIA.

Rev. J. Burwash, A.M., Professor of Natural Science, in Mt. Allison College, Sackville, N.B., has resigned his chair to assume charge of the First Methodist Church, Charlottetown, P.E.I. Professor Burwash is a younger brother of Rev. Dr. Burwash, Cobourg, Ont. For several years he filled the position of Provincial Assayer as well as that of Examiner in Science to the University of Halifax. The Board of Governors of Mt. Allison College, at a recent meeting filled the vacancy by electing W. L. Goodwin, Esq., winner of the Gilchrist Scholarship in 1877, and B. Sc. of the University of London.

The Rhetorical Exhibition of the Junior Class of Acadia College, was held on the 15th ult. Essays were delivered by the members of the class as follows: "Adam Smith's Influence on the Modern Industrial World," by T. Sherman Rogers, Amherst. "Republicanism in France and in the United States," by D. Spurgeon Whitman, New Albany. "The Influence of the Thinker on his Age," by I. Wallace Corey, Cole's Island, N.B. "Nihilism in Russia," by Joseph S. Lockhart Lockhartville. "The Augustan Age," by Clarence W. Bradshaw, Centreville, P.E.I. "Art in Relation to Strength," by Barclay E. L. Tremaine, Halifax. "The Uses of Biography," by Charles W. Williams, Wolfville. "Alexander at Arbela," by Herbert R. Welton, Wolfville. "The Crusades," by A. Lewis Powell, Amherst. "Gladstone and Beaconsfield," by C. Osborne Tupper, Amherst. "Venice," by William C. Goucher, Truro. "Tennyson's Ideals." by O. C. S. Wallace, New Cannan. At the close the Exhibition Speeches were delivered by several gentlemen. The address of E. M. Chesley, Esq., A.M., Principal of Yarmouth Seminary, seems to have been particulary well timed.

The University Consolidation Association met for the transaction of business on the 29th ult. The Association with guests dined together in the evening at the Halifax Hotel. Next month's notes will furnish a report of proceedings.

The Board of Governors of Acadia College have inaugurated a movement to endow a Theological Professorship in memory of the late Rev. Charles Tupper, D.D. A subscription of $500 in furtherance of the movement has been received from the Hon. Minister of Railways.

Albert Coldwell, Esq., A.M. has contributed to the *Mail* and *Herald* an interesting sketch of the Acadia College and its Professors. The same papers have published an elaborate history of Pictou Academy, and its important legislative controversy connected with its establishment.

We reget to record the death of Dr. G. J. Farish, of Yarmouth. From the establishment of the Free School System in Nova Scotia in 1864 until the revision of the method of inspection in 1880, Dr. Farish filled the position of Inspector of Schools for the County of Yarmouth with great efficiency.

Angus Chisholm, Grade A. 1880, and B.A., of St Francis Xavier's College, is spending the winter at his Alma Mater in the position of Assistant Professor of Classics.

MANITOBA.

The Rev. W. C. Pinkham, Superintendent of Education, returned from his eastern trip on November 29th, and has resumed his duties with new vigor and enthusiasm. He is preparing a report of his mission, which we hope to publish in the next number of the JOURNAL. We understand that it is his intention to visit different parts of the Province from time to time, as far as his office duties will permit, for the purpose of giving information respecting the School Law, and to stir up educational matters generally. No doubt the enthusiasm which he himself feels he will be able to impart, in some degree, to others.

Greatly to the regret of educationists in Winnipeg, James H Stewart, Inspector, and Mr. John B. Ferguson, Principal, of the Winnipeg Protestant Schools, have sent in their resignations, to take effect at the end of the school year (January 31st). They both intend to take up University work, and to graduate. Mr. Stewart is an undergraduate in Honors of the University of McGill. He intends to apply for his standing in the University of Manitoba and to graduate here. The work of both gentlemen during the past year has been beyond all praise. The staff of teachers in the city schools is an excellent one. It will have to be increased, but the probabilities are that the highest positions will be filled by promotion.

The supply of duly qualified teachers in Manitoba exceeds the demand, and the Superintendent is inundated with applications from teachers in different parts of the Dominion. Mr. Pinkham endorses *bonâ fidé* certificates from other Provinces, when accompanied by a certificate of good moral character; and certificates, so endorsed, are good until the examination of teachers, which takes place in August. Teachers coming to Manitoba must take their chance of finding employment, with those already in the Province.

At the last meeting of the Council of the University of Manitoba, Mr. Rice M. Howard resigned the position of Registrar, and Mr. T. A. Bernier was elected to the vacancy. Mr. Bernier has lately succeeded the Hon. A. A. C. La Riviere, M.P.P., the new Provincial Secretary, as Superintendent of Education for Roman Catholic schools.

The Rev. Alexander Matheson has, in consequence of enfeebled health, resigned his position as Inspector of the Protestant Schools on the east side of the Red River.

The Board of School Trustees, Portage la Prairie, are preparing to erect a very fine central school. The school population has doubled in that town since last spring.

Readings and Recitations.

BUD B'S CHRISTMAS STOCKING.

A POEM FOR THE LITTLE ONES.

I.

It was Christmas time, as all the world knew
It stormed without, and the cold wind blew,
But within all was cheerful, snug and bright,
With glowing fires and many a light.

II.

Bud B. was sent quite early to bed,
His stocking was hung up close to his head,
And he said to himself, "When all grows still,
I will find a big stocking for Santy to fill."

III.

Now good honest Hans, who worked at the house,
Had gone to his bed as still as a mouse;
The room where he slept was one story higher
Than Bud's little room, with gaslight and fire.

IV.

Now Hans loved "the poy" and he petted him too,
And often at night when his tasks were all through,
He would tell him strange stories of over the sea,
While Bud listened gravely and laughed out in glee.

V.

This night Hans had promised to wake Bud at four,
He would come softly down and open his door,
But suddenly Bud bounded out of his bed,
And stole softly up to the room over head.

VI.

On his hands and knees he crept softly in;
"I'll borrow Hans' stocking," he said with a grin;
"Old Santy will fill it up to the top,
And Hans—oh, such fun—will be as mad as a hop."

VII.

He moved very slowly, and felt near the bed,
No stocking was there, but down on his head
Came a deluge of water, well sprindled with ice
While honest Hans held him as if in a vise.

VIII.

"Vat ish dat?" he cried, "von robber I find,
Den I pound him, and shake him, so much as I mind."
"It is me," called out Bud; "stop Hans, oh please do;
I am only a boy; I could not rob you."

IX.

But Hans did not pause; his temper was hot,
And he dragged the young robber at once from the spot.
When he reached the light hall great was his suprise
To find his young master with tears in his eyes.

X.

"I wanted your stocking," muttered Bud B;
"It's bigger than mine; boo hoo, I can't see,
And I'm all wet and cold," thus Bud cried aloud,
Until guests and his parents ran up in a crowd.

XI.

He was wrapped up with care and taken to bed,
But, strangest of all, not a harsh word was said.
He flattered himself as he fell fast asleep
That Hans and his friends the secret would keep.

XII.

Next morning when Christmas songs filled all the air,
Bud found, to his grief and boyish despair,
That his neck was so stiff he could not turn his head,
And must spend the whole day alone in his bed.

XIII.

What was worse, his stocking hung limp on a chair,
And on it these words in writing most fair:
"To him that is greedy I leave less than all;
The world is so large and my reindeers so small.

XIV.

"My pack is elastic when children are kind,
But it shuts with a snap and leaves nothing behind
When a boy or a girl is selfish and mean,
Good-bye little Bud, I am off with my team.

SANTA CLAUS."

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

SOUTH WELLINGTON AND GUELPH CITY.—The South Wellington, and Guelph City Teachers' Association met in the Public School, Fergus, on Thursday morning, the 17th November, at 10 a.m. Mr. G. W. Field, B.A., President, in the chair. On the meeting being called to order, the President explained that Mr. Ross, M.P., although on the programme, would be unable to attend, owing to other engagements. Mr. H. Roberts, Secretary, then read the minutes of the last meeting, which, on motion, were adopted. Miss Hoskin not being prepared to deal with the subject of "School Discipline," the President requested Mr. Boyle to address the convention on that topic. He was not in favor of abol shing corporal punishment altogether, but would appeal strongly to the honour of the pupils. A plan which he has found very successful is, instead of detaining those after school for unprepared lessons, to let those who have done the required quantity of work go earlier than usual. A spirited discussion then took place, in which, though differing as to their method of applying punishment, were unanimous that corporal punishment is indispensable with school discipline. Mr. Nairn then introduced the subject of "History" in Public Schools, and showed his method of teaching it, making use of newspapers and stories in connection with text-books. Mr. Young thought that in preparing for entrance examinations there was not time for this method, but that the facts and dates had to be crammed as fast as possible. Mr. Clark was in favor of the period or epoch system. Noon having arrived, the proceedings were adjourned until 1.30 p.m. The first business in the afternoon was a paper on "Mental Arithmetic," by Mr. Moir, of Eramosa, in which he showed that mental arithmetic was greatly undervalued by teachers, and that enough attention was not devoted to it. He showed clearly how to teach the four elementary rules, laying especial stress in not allowing the pupils to leave addition until they could add by sight, and not by the use of fingers. Other methods; considerable discussion followed. The election of officers then followed with the following result:—President—Jas. Young, Fergus; Vice-President—Jas. Grant, Oustie; Sec.-Treasurer—David Nairn, Marden; Management Committee—Miss Budd, Miss Mills, Mr. Craig, Guelph; Mr. Hyatt, and Mr. Fenwick, B.A., Fergus; Auditors—Messrs. Cook, and Jennings. The surplus funds of the association were then disposed of by a resolution moved by Inspector Craig, authorizing the Secretary to furnish every member with a copy of either the CANADA SCHOOL JOURNAL or *Educational Monthly*, as desired. In the evening a public meeting was held in the High School, which was addressed by Mr. Field, the retiring President, and Dr. Bryce, of Guelph, who delivered an able lecture on some preventible diseases, and what we should know of them, bearing more or less on sanitary measures in school. *Friday*, 9 a.m.—The first business was the reading by Mr. Grant of a carefully prepared paper by Mr. Luttrell, of Eramosa, on the "Superannuation Fund." He contrasted those in the profession of teaching with those in the civil service, showing that a position in the civil service is not only more remunerative, but also permanent, and claimed that teachers should receive the benefits of the fund after teaching twenty-five years. A lively discussion followed, some advocating its entire abolition, while others favoured the twenty-five-year limit. To bring the matter to a head, the following resolution was moved,—That all teachers remaining in the profession for twenty-five years shall be then entitled to receive a retiring allowance; and further, that all leaving the profession before serving the twenty-five years, shall receive back all money paid into the fund, without interest"—*Carried*. The subject of "Promotion Examination" was then discussed, when it was resolved that they be continued in this Riding, and that the Inspector see to the carrying of them out. Mr. Grant, of Eramosa, then read a very interesting and thoughtful paper on, "Does the work done in our Public Schools conduce to popular culture?" The speaker considered the subject a most important one, especially to the teacher of the youth of the land. He believed that a moderate amount of well directed general reading would make a fairly cultured person of one who was endowed with common sense and shrewdness, and maintained that it was the teacher's duty to teach the pupils how to read understandingly, and (what was of great moment) what to read. In order to do so, the teacher must know books and how to use them. He spent two or three hours each week in hearing recitations, debates, and such like, and thought these helped to develop a taste for reading. The paper was well received. After some routine business, the association adjourned to meet at Guelph, at the call of the President.

DAVID NAIRN,
Secretary.

REVIEWS.

CHATTERBOX JUNIOR. *R. Worthington, 770 Broadway, New York.* This is a well got up, beautifully illustrated, and instructive book for juveniles. The contents are replete with attractive stories, descriptions of foreign lands and their inhabitants, anecdotes of animals, with their habits and peculiarities, gems of poetry, &c. The book is admirably adapted for a gift or prize, and is one that will be much appreciated by the happy girl or boy who is fortunate enough to get it.

CAT'S CRADLE. *R. Worthington, New York.* This is a book for the nursery, strongly bound, thick paper; funny and attractive, with striking illustrations. As its title suggests, the domestic feline pet enacts many extravagant parts; while other personages renowned in infantile lore make their appearance in new costumes and contribute to the entertainment of the little folks. The descriptive rhymes will complete their enjoyment of what is an excellent book of its class.

OUR LITTLE ONES and THE NURSERY. *The Russell Publishing Co., Boston.* It speaks volumes for the success of "Our Little Ones" that at the end of the first year of its publication it should have absorbed the old-time favorite "The Nursery". With Oliver Optic in the Editor's chair, Andrews for engraver, and the University Press, Cambridge, for Printers, there could be little doubt that the finest child's magazine in the world would be produced. Then with Mr. Sol Smith Russsell, on the road to introduce it, it is not so great a marvel that in a single year, it went through all the grades and received the highest honors on "Commencement Day." Lee and Sheppard took 30,000 copies of the bound volume for holiday sale. Every girl and boy should see it. It cannot be described.

A life-size portrait of Ralph Waldo Emerson, uniform with the *Atlantic* portraits previously published of Longfellow, Bryant, Whittier, Lowell, and Holmes, has just been published. It represents Mr. Emerson not in his old age but in the full vigor of his manhood. To those who used to hear Mr. Emerson lecture twenty years ago or more, this portrait will recall the marked features and the personal appearance of one who then was, and who still is, a leader in American thought and letters. It cannot fail to be heartily welcomed by all those who have heard Mr. Emerson lecture, and by those who have read his remarkable writings; and must also be acceptable to those who, without personal knowledge of him or intimate acquaintance with his books, yet know that he is an honor to American literature, and sheds lustre upon the American name throughout the world. The portrait was prepared for subscribers to the *Atlantic Monthly*, to whom it is furnished for one dollar by the publishers, Houghton, Mifflin & Co., Boston.

AN ELEMENTARY TREATISE ON MENSURATION, BY G. B. HALSTED, A.M., Ph.D., Instructor in Post Graduate Mathematics, Princeton College, ex-Fellow of Johns-Hopkins University. 232 pp. *Boston: Ginn, Heath & Co., 1881.*—All the advantages derivable from mathematical studies may be obtained from the systematic study of Mensuration, whilst its practical utility is patent. But a mere compilation of rules is a poor affair. Logical analysis and proofs should be found in a complete treatise on any mathematical subject. The author of the above-named work gives clear and simple proofs of the various rules, introducing some theorems generally found only in books on Trigonometry or Integral Calculus. The earlier chapters contain applications of Euclid *i.*, 47, rectification of the circle, and plane areas, including conic sections and spherical triangles. The formulæ for volumes refer to prisms, cylinders, cones, spheres, prismatoids, ungulas, and solids of revolution solved by means of Pappus' Theorem. The investigation of the applicability of the prismoidal formula enables the student to group under one general principle the rules for volumes of hyperboloids, spheroids, cylinders, etc. Weddle's method of approximating to all surfaces is fully explained. The collection of examples for practice contains over 600 problems, each of which is a type of a class. Although Dr. Halsted has treated the subject in an exhaustive manner, yet the arrangement is logical, proceeding gradually from easy elementary principles to the most complicated problems. The only error that the author appears to have committed is that of using too many abbreviations in the reference tables. But this fault cannot cause much inconvenience to the reader. We can confidently recommend the volume as a valuable addition to our list of standard mathematical works. This publication reminds us that we are living in a different epoch from the olden time, when American mathematical works were remarkable for the omission of all difficulties.

SONG OF THE BROOK. By Alfred Tennyson, D.C.L. *Published by Estes & Lauriat, Boston, Mass. Price, $2.00.* We have been favored by Messrs. N. Ure & Company, King St., Toronto, with a copy of this beautiful work. It is gotten up in a chaste and elegant style, which is very fashionable at present; and the illustrations are some of the finest specimens of the engraver's art. The several phases of the "Song" are pictured by some of the leading artists of the day, each picture occupying a page. This volume is the initial one of a series, which will be entitled "Songs from the Great Poets." We know of no way by which the descriptive portion of a poet's imagery can be more forcibly impressed on the minds of readers than by that adopted in the book before us.

POPULAR SCIENCE MONTHLY, Jan. 1882. If a teacher can afford to read one magazine, that one should be the *Science Monthly.* Its topics include a wide range, and they are treated in such a way as to keep the teacher up with the times. The widening of his scope, and the extension of his fund of illustrations will be worth far more per month than the Magazine costs in a year. "Earthworms and their wonderful works" is a review of Darwin's new book. It would startle the pupils in any school if the teacher could explain the nature and extent of the work done by the ordinary "fish-worm." "Astronomy in High Schools" is a brief article showing how a good teacher can easily interest a class in this subject. "Copyright Law," "The Chemistry of Tea and Coffee," "Sanitary Relations of the Soil," and "Volcanic Products," are among the most interesting of the numerous articles of this number.

MAGAZINES.

HARPER'S WEEKLY continues the interesting stories "Christowell" and "For Cash Only" and begins in No. 1303 a new story "Benighted Travellers" which bids fair to be as interesting as its predecessors, much valuable information is given in "The Cruise of the Alliance." The Giteau trial receives considerable prominence and is not too severely caricatured if it will draw attention to the evils of the "Spoils System." The excellency of the art department is well sustained especially in the supplement to No. 1303.

LITTLE'S LIVING AGE for 1882. This widely-known weekly magazine has been published for nearly forty years, and during that long period has been prized by its numerous readers as a thorough compendium of the best thought and literary work of the time. As periodicals become more numerous, this one becomes more valuable, as it continues to be the most thorough and satisfactory compilation of the best periodical literature of the world. It fills the place of many quarterlies, monthlies, and weeklies, and its readers can, through its pages, easily and economically keep pace with the work of the foremost writers and thinkers in all departments of literature, science, politics, and art. Its importance to American readers is evident; in fact, it is well-nigh indispensable to those who would keep informed in the best literature of the day; and its success has therefore been uninterrupted. Its prospectus is well worth attention in selecting one's periodicals for the new year. Its clubbing rates with other periodicals are worthy of notice. Littel & Co., Boston, are the publishers.

AMERICAN JOURNAL OF MATHEMATICS, Vol. 3, No. 4. An article on "Congruences," affording a generalization of the Algebraic Theorems of Fermat and Wilson, will be found of interest. Mr. Johnson, of Annapolis, Md., writes on the species of curves to which the strophoid or logocyclic curve belongs (polar equation, $\gamma = a \sec. \theta + - a \tan. \theta$) Prof. Sylvester shews how any rational fraction may be developed into a series of fractions, each having unity for numerator; it is quite conceivable that practical value may attach to such expansions, and the ingenuity of the distinguished contributor make the subject worthy of a place in our wor s on Algebra. Dr. Whitcom treats of certain developments belonging to that inexhaustible subject, "Taylor's Theorem." Prof. Hyde, of the University of Cincinnati, has a quaternion treatment of centres of gravity of surfaces and solids of revolution. The subject of "Quaternions" is every year receiving increased attention, and it becomes a question whether they should not form part of the pure mathematical course in our Provincial University. To those who are concerned about the matter, an article on "Linkages" will be read with some interest.

AMERICAN JOURNAL OF MATHEMATICS, Vol. 4, No. 1., contains the following articles:—On the 34 concomitants of the Ternary Cubic, *Prof. Cayley;* On certain Expansion Theorems, *E. McClintock;* Some Theorems in Numbers, *C. H. Mitchell;* Note on the Frequency of Use of the Different Digits in Natural Numbers, *Simon Newcomb;* Tables of the Generating Functions and Groundforms of the Binary Duodecimic, *Prof. Sylvester;* A Demonstration of the Impossibility of the Binary Octavic Possessing any Groundform of deg-order 10·4, *Prof. Sylvester;* Logic of Number, *C. S. Pierce;* Remainder of Laplace's Series, *E. McClint ck.*

THE CENTURY MAGAZINE (SCRIBNER'S), January, 1882. A very fine tinted engraving of the great Frenchman, Mons. Thiers, forms the frontispiece of this number. The illustrated articles are: "A Provincial Capital in Mexico;" "The Revival of Burana Lace," very suggestive to ladies interested in household art; "Oriental and early Greek Sculpture; and "Who Were the Chartists?" In stories there are: Mrs. Burnett's "Through One Administration;" Mr. Howell's "A Modern Instance," and a finished story "Old Madame"—all good. The *Magazine* begins the year well.

HARPER'S MONTHLY, January, 1882. A beautiful engraving forms the frontispiece of this old favorite. It represents the youth who entered the lion's den, to get the glove of the lady to whom he was paying his addresses, and who tested his devotion by flinging her glove into the arena among the lions, and challenged him to bring it to her. The story is told in the "Editor's Easy Chair." "Anne" and "A Laodicean" are each advanced a stage, and grow more interesting. Nearly every article in the magazine is profusely illustrated. Among those of most general interest are, "Journalistic London," Part IV., containing the portraits and sketches of the most distinguished newspaper men of London. This paper deals with the illustrated papers; "Young Men's Christian Associations," with eleven portraits; "King Coal's Highway," and "Ancient and Modern Glass of Murano." The short stories are excellent, and the "Editor's Drawer" even funnier than usual.

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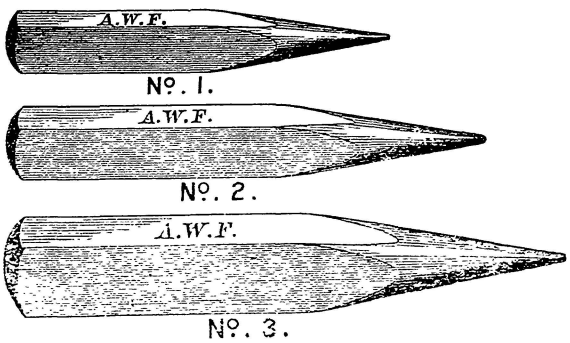

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The Canada School Journal.

VOL. VII. TORONTO, FEBRUARY, 1882. No. 57.

The Canada School Journal

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CANADA SCHOOL JOURNAL HAS RECEIVED

An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course, unable to make any distinction in a list containing names from all parts of the United States and Canada.

REVISION OF THE PROGRAMME.

—A number of people have labored under the misapprehension that the Public School programme for Ontario was elastic to a much greater extent than it really is. For rural schools a certain very limited power has been given to inspectors and trustees to modify the programme in some of the subjects. Inspectors and School Boards in cities and towns have no such power to diminish the work prescribed by the Department. They may add to the prescribed work that which is optional, but they have no power to lesson it, nor do we advocate placing such power in their hands. We hold that the Department should issue two programmes, one for cities and towns and the other for rural districts, and that these should be prescribed. If licence is allowed to any but a very limited extent and for express reasons, many careless school boards would cut down the programme with the single view of securing a cheaper teacher. School Boards everywhere will do cheerfully what is laid down clearly as their duty by the Department, unless the Department oversteps the mark, and becomes tyrannical or arbitrary for mere whim's sake.

If it is the intention of the Minister of Education to revise the programme, we cannot give him better advice, than to urge him to follow the course pursued by Mr. Mundella in England. He first called to his aid a number of the practical educators of England and with their assistance prepared a "revised code"; which he afterwards submitted to a smaller committee of educational experts for revision. It was then placed before parliament with the understanding that it should lie over for a year before being passed, so that it might be subjected to the criticism of the entire country. In this way Mr. Mundella will get the benefit of the suggestions of all who have opinions concerning the code, and when it is passed it will be likely to prove satisfactory. We hope our Minister may make progress in the same deliberate manner.

FIRST CLASS CERTIFICATES.

—The letter of our correspondent in another column raises an important question. He is the representative of a large class who are among the best teachers in Ontario, and we fully sympathize with him in the view that professional skill and experience should receive a much higher recognition than is at present accorded to it. The teachers' section of the Ontario Teachers' Association passed a resolution at the last meeting in favor of this view. Unfortunately they did not indicate any plan by which so desirable a result could be attained. We recognize fully the difficulty of adequately awarding to ability and experience the position to which they are justly entitled, by any kind of certificate. We do not think that it is asking too much, however, to claim that as the professional First Class certificate is distinct from the non-professional First Class Certificate, the former should be placed on the same footing as the latter. At present the professional certificate is merely a subordinate matter. It cannot be obtained as distinct from the non-professional. Any school boy who has been crammed to the passing point at a High School may write for a non-professional First Class Certificate and get from the Department a statement to the effect that he has passed the First Class examination. This he uses in making applications for situations, and School Boards, who in many cases have given over attempting to understand the regulations of the Department, give him the preference over men of experience and ability, who have not been able to reach the First-class standard in some of the subjects. We do not ask that those who succeed in passing the non-professional examination shall not be permitted to receive from the Department the evidence of their success. We only ask that those who pass the professional First Class examination shall receive similar consideration. If this is not done, it need not be wondered at, that the professional examination and professional training will be regarded as unimportant matters by teachers generally. Surely no more disastrous impression could go abroad than this.

The Minister of Education only needs to look into the deserted halls of the Normal Schools to see the results of the present system of elevating the comparative importance of the non-professional work. The empty echo that comes in our Normal Schools to the question, "Where are the First Class Candidates?" should startle him. We hope he may ask the question, and that it may lead to a much needed change.

—We are pleased to note that W. S. Clendinning, Esq., has been appointed to the Inspectorate of Walkerton, in addition to his already important position of Inspector of Public Schools in Bruce County. This District was formerly under the Inspectorship of the Rev. Dr. Bell, who has been appointed one of the Professors in Queen's College.

THE CENTRAL COMMITTEE

—Two members of the Central Committee retire each year. Those whose term expired at the end of 1881 are Mr. Glashan, Public School Inspector, Ottawa, and Professor Watson of Queen's University, Kingston. They are both excellent men, wise in council and judicious examiners, and great care should be exercised in filling their places.

It is understood that the High School Inspectors will, in accordance with a suggestion made in Parliament last year, be made *ex-officio* members of the Committee for all but examining purposes. This is proper, but it makes it all the more necessary to select a good member to fill the place of Mr. Marling, who will by this arrangement cease to be an examiner. We hope to see good, sensible men appointed on this important committee who have no crotchets, and whose training has made them thoroughly acquainted with the Public School System of our country. If the Minister of Education decides that he must have High School and University men for examiners, it seems perfectly clear that very soon he must form a special advisory committee. It is of the utmost importance this year that the advisors of the ministers should be practical men as it is understood that the question of the revision of the Public School Programme will be considered by the Department.

INCREDIBLE!

It has been stated in the papers that two of the vacancies on the Central Committee are to be filled by Professor Hutton and J. Howard Hunter, M.A. It seems to us incredible that the Minister of Education could even think of appointing either of these gentlemen to positions on the Committee. To do so would be an insult to every teacher in Ontario, so deliberate and so unjustifiable that we are confident Mr. Crooks would not consider the matter for a moment. We can only account for the rumor on the supposition that some of the enemies of the Minister of Education circulated the statement for the express purpose of injuring him. Indeed, we understand the announcement was first made in a "monthly," one of whose aims since its birth, has been to misrepresent and attack the Minister, and as it betrayed a lamentable ignorance regarding the present membership of the Committee, we may safely conclude that its prophetic utterances are not more reliable than what it presents as a record of facts. The same article that announced that Messrs. Hutton and Hunter are the coming men, also stated that "Mr. Tilley is, and that Mr. Buchan is not a member of the Committee." As the latter statements are incorrect, let us hope that the former are also unreliable.

We have no hesitation in stating the reasons which lead us strongly to object to the appointment of the gentlemen named as members of the Central Committee.

Against Mr. Hutton our objections are purely of a negative character. As a man and as a scholar he is entitled to the fullest respect, and we cheerfully award to him our highest praise in these respects. We hold also that the members of the Central Committee should be gentlemen and scholars, and that so far Mr. Hutton is perfectly fitted for membership. There are special qualifications for the position, however, which Mr Hutton can not possibly possess. He is a foreigner and can not be sufficiently acquainted with Canadian schools to act in the capacity of an examiner justly to all parties concerned. However unfitted he may be for the post of an examiner, he is disqualified to a much greater degree for performing the duties of an adviser on educational questions. No one is competent to give counsel regarding the public school questions of any country who is not practically acquainted with the schools and their relationship to society, and all local circumstances directly or indirectly affecting them. What a farce it would be for Mr. Hutton to advise the Minister of Education concerning the Public School Programme for instance. If objection was made to his appointment as a professor, to teach subjects of which he is master, how great will be the outcry, and how just, if he is called to give counsel concerning questions of which he can practically know nothing.

We object to Mr. Hunter for both positive and negative reasons. We can not say for him what we have said of Mr. Hutton. Even if Mr. Crooks wished to give him a prominent place in connection with the Education Department, Mr. Hunter would consult his own interests, if he is possessed of any feelings of delicacy, by refusing to accept it. There were many facts brought out during the investigation into Mr. Hunter's conduct in the Blind Asylum that were not commented upon at the time owing to his prompt removal from his position by the Government. These "arbor" scenes and others have not been forgotten, and the re-appearance of Mr. Hunter in connection with the Education Department, will assuredly stir them to life again, to the annoyance of himself and the Minister of Education.

Mr. Hunter is a man of some strength of character, but his strength is neutralized by his personal animosities, by an unfortunate acidity of disposition, and by his bitter partizanship. When he left the teaching profession, those in it breathed more freely and gave thanks. We know that we speak for the great majority of Public School teachers, High School Masters, and Inspectors when we say that the return of Mr. Hunter to official connection with educational matters would be a calamity, which could not be justified on any plea. The appointment of Mr. Hutton could only be justified on condition that the Committee ceased to have advisory functions; the appointment of Mr. Hunter would not be tolerated on any grounds whatever.

In conclusion we venture to make the strong statement that no Minister of Education, however popular he may be, can afford to surround himself with men like Mr. Hunter; and we express the hope that the day is far distant when the Education Department will be made a refuge for those who have failed to secure the confidence of their fellow citizens in much less important trusts.

If vacancies are to be filled an excellent opportunity is offered for popularizing the Department by securing responsible men, elected by the Public School Teachers, Inspectors, and High School Masters.

—A correspondent urges the desirability of having the marks obtained by candidates for First Class certificates issued to those who fail, as is done in the case of candidates for the Intermediate and Second Class Examination. The reason given for withholding the marks is, that no absolute standard is adopted for granting First Class certificates. The Central Committee varies the standard slightly according to the nature of the examination, and the publication of the marks might lead to much misunderstanding and unnecessary appealing. We think, however, that each candidate should be informed at least as to the subjects in which he made the lowest per centage of marks.

—Judging from the reports to hand we should presume that the state of the Schools in New Westminster, British Columbia, is highly satisfactory.

—In order to enable the provincial Teachers to shew fully the progress in Educational matters, in the province of New Brunswick, at the Loyalist Centenary, to be held in St. Johns, 1883, a vigorous effort is being made to secure an appropriation from the Local Government.

—ONTARIO BUSINESS COLLEGE, BELLEVILLE ONT.—The attendance at the Ontario Business College Belleville during the month of January exceeded 160 day students. In point of members this brings the college to the place of second largest on the continent — one in New York state only exceeding it—and in point of efficiency we know it takes the first place. Our knowledge of the institution and its principals is such as to warrant this assertion. A most interesting description of the college in session appeared in the "Intelligencer" recently.

—An investigation into the charges made against Dr. May in connection with the management of the People's Depository was conducted at the Education Department during the early part of January, by Judge Senkler of St. Catharines. The investigation was conducted with closed doors. This has been unfavorably commented on in some quarters, but the result of the investigation with the evidence taken will doubtless be submitted to Parliament, and printed. Till this is done we refrain from any expression of opinion regarding the charges, or the method of investigating them.

—It is rather amusing to see in a journal, which makes constant claims to "highness and independence," that "Mr. Tilley is now leaving the Central Committee, and that Mr. Buchan is likely to be appointed to fill one of the vacancies on the Committee." Mr. Tilley has not been a member of the Committee since 1880, and Mr. Buchan has been a member for several years past, and still occupies the position. It would not be fair to expect the editor of that journal to know anything about the methods of teaching or the principles that underlie them, as he never was a teacher, but he might surely give some slight attention to the educational circumstances of the province in which he lives. We venture to say that none of the few readers, for whose enlightenment he writes, could show such a gross lack of knowledge as does the blundering editor. It must be remembered, however, that he is hired to adapt the matter of the magazine to its advertising pages. So long as he does that in a sufficiently slashing way his employers will not find fault with him.

—WE record with much pleasure that S. Woods, Esq., M.A., late Head Master of the Collegiate Institute, Kingston, has received the appointment of Professor of Latin and Greek in the Academy in connection with the University of Lake Forest, Chicago. The emoluments consist of $2000 per annum and 20 per cent. of the advance of the income over 1881, together with a free house and no taxes. Mr. Woods graduated in Toronto in 1862, with the highest honors in all departments, being gold medallist of his class. He has had nearly twenty years experience in teaching in Kingston, and as Professor of classics in Queen's University. He has published editions of Demosthenes' Phillippics, Cicero, Cæsar, Virgil, and Horace. Although his removal is a loss to Canada we cannot but rejoice at his success.

—The letter from Mr. Clark, in another column, is one of much interest to those teachers who intend to enter the profession of medicine. We regard the action of the Medical Council in adopting the Intermediate for their Matriculation Examination, as a step in the right direction. It saves expense to the student, prevents charges of favoritism, too often made when the examinations were in charge of one man, and secures a more uniform and a higher standard for admission to the Medical Schools. So far as the interpretation of the phrase, "the Intermediate Examination with Latin included," is concerned we know that it was originally intended to mean, passing the Intermediate by taking Latin as the optional subject in group four. It clearly means passing on the fixed groups in the same manner as other candidates, and taking Latin instead of French, German, or Philosophy, Chemistry, and Book-Keeping. It does not mean passing the Intermediate first, and then taking Latin afterwards, although a student who had passed the Intermediate without Latin could enter upon the study of medicine by taking Latin alone. It has been said that the Toronto Examiner under the old regulations, the President of the Teachers' Association of the Province, was the first to endeavor to raise difficulties in regard to the new rules. Loss of fees was of course his reason for not liking the change.

—We notice with much disappointment that the Senate of the University, while recommending a considerable addition to the number of professors, entirely ignores the subject of Education. We hold, that as the University is a part of our national system of education it should do more than merely complete the instruction of the comparatively few young men who enter its halls. It should improve the educational facilities of the entire school population of the country. It should be the centre of light and influence in all that pertains to systems and methods of teaching. It should be the beginning as well as the end of our national system of education. It should be the fountain from which one educational river should take its rise, and not simply a stream entering the river near its mouth. First Class Public School Teachers, and High School Masters should in it be instructed in the history and science of education. Until this is done there will be a good deal of experimenting in comparative darkness in our schools. The training of teachers in the upper grades is lamentably defective in Ontario, and a reform is urgently needed. Would not the appointment of a Professor of Education in the University be the simplest and surest means of training both High and Public School Teachers beyond the point reached in the Normal Schools?

Correspondence.

To the Editor of the Canada School Journal:

SIR,—I have to thank you for inserting in your JOURNAL a former letter written by me pointing out a number of errors in one of the Geographies authorized for use in Ontario. I sent the same letter to the *Educational Monthly*, but though it pretends to be a teachers' journal my letter was not inserted.

I now send you a number of errors to be found in connection with our own province alone in Campbell's Geography. I have not used this book myself, and would probably not have discovered the gross blunders it contains, but for the fact that *in a single lesson* nine mistakes were made by my pupils, which they attributed to Campbell's Geography, the work which I found in my school. On examination I found that the pupils had answered in accordance with the instructions contained in their text-book. I was led to look more closely into the book and I find it literally teeming with errors even in the portion devoted to Canada itself. I am amazed that it should ever have been authorized, and I believe that teachers only need to have their attention called to the mistakes it contains to lead them to recommend the withdrawal of a book which seems to have no good quality to recommend it.

Yours truly, HIGH SCHOOL PRINCIPAL.

We refer our readers to the *Review Department* of this JOURNAL for an analysis of the part of Campbell's Geography referred to, which contains most of the mistakes sent us by our esteemed correspondent.—ED. OF JOURNAL.

THE INTERMEDIATE AND MEDICAL MATRICULATION.

To the Editor of the Canada School Journal:

DEAR SIR,—Will you kindly procure a final decision as to the meaning to be attached to the words in the declaration of the Medical Council: "Every one desirous of being registered as a Matriculated Medical Student must present to the registrar the official certificate of having passed the High School Intermediate Examination, *with Latin included?*" Will the authorities kindly explain whether this means: *A.*—That the intending matriculant must first pass that branch of the Intermediate Examination in which Latin forms an essential part? or, *B.*—That he must pass in (1) the French, or (2) the German, or (3) the Natural Science section of the Intermediate; and, in addition to passing any one of these, according to his choice, pass in the Latin prescribed for the same Examination? I observed that in the Canadian Almanac for 1882 Trinity College authorities are represented as interpreting the ambiguous declaration as meaning that the would be Matriculant may take his choice between passing the Intermediate Examination in the French or in the German section, and must then take the Latin for the Intermediate.

Is there any authority for omitting the Natural Science from the list of optional subjects, or is it not rather the intention that the student may elect to take (1) French, or (2) German, or (3) *Natural Science*, as prescribed in said examination, and is then under obligation to take the Latin also?

Upon this latter supposition which seems to be the natural meaning of the words, I would like to know why the Hon. Minister of Education may not amend the regulations so as to allow pupils to take the Intermediate Examination in Latin at the same time as they take examination in the French, German or Natural Science Department, according to their declared wish.

If there ever was any propriety in preventing a candidate from trying the examinations in two departments at one examination surely the rule may be relaxed in favor of pupils who may wish to matriculate in Arts, Law or Medience. All that is necessary is to allot a different half-day in the Intermediate Examination to Latin from that on which the canadidates may be taking the French, German and Natural Science. As at the last Intermediate Examination, French, German and Natural Science fell on one half-day and Latin upon another. I hope the regulation referred to will be amended, as I have suggested, previ ·s to the next Intermediate Examination.

Yours &c.,

J. A. CLARK, H. S. SMITHS FALLS.

To the Editor of the Canada School Journal.

SIR,—As an instance of the practical benefit to be derived by teachers from perusing the JOURNAL, I wish to mention the method of Prof. Peaslee (as explained in the December number), which I have adopted in my school. For example, we spend five minutes every morning before commencing regular work in repeating the verse:

Hearts, like doors, will ope with ease
With very, very little keys,
And don't forget that they are these:
"I thank you, Sir," and "if you please."

This, with the verse following, is sufficient for one, or in the junior classes, two weeks. The lesson to be thoroughly impressed on the minds of the pupils, may be deducing a prose maxim or two; for instance, the week following I give my class: "It is too often the case in this country that young people do not know how to be polite and respectful. To be polite means to be unselfish in heart, and to be kind and courteous to everybody. True politeness with refinement of manner marks the true gentleman and the true lady," &c. This may be altered by the teachers to suit their respective classes in each division of a school. These prose morals or maxims should be short, clear, and as thoroughly Angle-Saxon as possible, so that the youngest pupil may experience no more difficulty in mastering them than it has in learning the Lord's Prayer. Short but effective lessons can thus be given (with the aid of our standard Poets) in honesty, benevolence, temperance, and, in fact, in every subject comprised in the "Christian Morals" so strongly insisted on by many clergymen as being a necessary part of our Public School Programme. I believe that some such plan as this is calculated to improve the morals and manners of the average school-boy to a considerable extent.

Impoliteness is considered by many to be a matter of very little moment, and in this busy age is too often lightly passed over. Contempt for the *human* is sure to lead to indifference to the *divine*, and may we not seriously inquire whether much of the socialism, agnosticism, &c., of the present day may not be a natural sequence to the selfishness and disregard for the principles of true politeness so larely prevalent amongst the present generation?

TEACHER.

PARKDALE, January 28, 1882.

To the Editor of the Canada School Journal:

DEAR SIR,—Allow me to call attention to an anomaly in the regulations affecting candidates for certificates.

When a candidate for a First Class Certificate tries both the professional and the non-professional and fails in the latter, he is refused any information about the results of his work in the former, and must write at the professional again, even when his work is very good. If he is a Normal School student, good teaching in the Model School does not give any higher standing. But, if a candidate having very little experience in teaching, succeeds in passing the non-professional examination, he receives credit for it, which gives him an advantage in applying for a situation, and enables him to give his whole attention to reading for the professional. The tendency is to discourage experienced teachers who try to gain higher certificates, and to favor those who are fresh from the High Schools and do not trouble themselves about professional training. It is no wonder that there are no students in the First Division at the Norman School this term. Is there any good reason for attaching so much relative importance to the non-professional part of the work?

Thanking you for giving me the opportunity to make this enquiry,

I am, yours truly,

STUDENT.

We have received many letters commending our course in "lifting the viel" in the last number of the JOURNAL. We give the following as a sample:—

To the Editor of the Canada School Journal.

SIR,—I feel that the teachers of Ontario owe you a debt of gratitude for "lifting the veil" from the grasping "syndicate" who under the guies of independence have been attempting to throw dust in the eyes of the public in order to advance their own selfish interests. It has long been a matter suprise to me that any one could be deceived by the pretence of G. Mercer Adams and the small ring of publishers and High School Masters whose tool he is. I hope you may complete the work you have so well begun. You will have the sympathy of the great body of teachers in doing so.

Yours &c.,

HIGH SCHOOL MASTER.

Mathematical Department.

VICTORIA UNIVERSITY MATRICULATION.

SEPTEMBER, 1881.

ARITHMETIC.

Examiner—J. A. McLELLAN, LL.D.

1. Prove the rules for pointing in multiplication and division of decimals.

Simplify $\frac{2}{5}(3\frac{1}{3}+1\frac{1}{4})$ L. $+\dfrac{1\frac{1}{3}-\frac{1}{2}\text{ of }1\frac{5}{8}}{\frac{1}{20}\text{ of }3\frac{1}{3}+\frac{13}{144}}\times\cdot475\text{ of }\dfrac{S}{5}+\dfrac{4\cdot2}{\cdot012}\,d.$

2. The value of the paper required for papering a room supposing it to be 27 in. wide and 9 cents a yard, is $10.35; what would the cost be if the paper were 2 ft. wide and 8 cents per yard?

3. Define the terms *measure, multiple, common measure, least common multiple.*

The L.C.M. of two numbers is 634938944494; their G.C.M. is 9187; one of the numbers is 85044059, find the other.

4. Define *ratio* and *proportion.* Prove that the product of the extremes is equal to the product of the means.

A grocer has 630 lbs. of a mixture of chicory and coffee, the coffee being to the chicory 4:3; what amount of coffee must be added to the mixture to make the ratio 10:7?

5. A person discounts a note due in 15 months, so as to make 10 per cent. on his money; what per cent. on the face of the note does he exact?

6. If 4 men earn as much in a day as 7 women, and 1 woman earns as much as 2 boys; and if 6 men, 10 women, and 14 boys earn $110 in 8 days, what will be the earnings of 8 men and 6 women working together for 10 days?

7. If a person has a certain capital, 40 per cent. of which he invests in $3\frac{1}{2}$ per cent. stock @ 90, the remainder in 4 per cent. stock @ 95; his total income is $1340. Find the amount of his capital.

8. Find the weight of a spherical iron shell whose internal diameter is 5 in., the thickness of the metal being 1 inch.

9. Find the area of a trapezoid, whose parallel sides are 27·5 yds. and 38·5 yds. respectively.

10. A man bought property for $9000, and agreed to pay principal and interest (compound) in four equal annual payments. Find the annual payment, interest being calculated @ 6 per cent.?

EXAMINATION QUESTIONS

SUITABLE FOR

INTERMEDIATE EXAMINATIONS.

ALGEBRA.

1. (*a*) Prove that $-b\times-d=+bd$; divide
   (*b*) $a^4(2x-y)^2-a^2x^2(x+y)^2+(x+y)\,2a^2x^4-x^6$ by $a^2(2x-y)-a\,x(x+y)+x^3$;
   (*c*) and shew $(a^2+b^2+c^2)^2=2(a^4+b^4+c^4)$ when $a+b+c=0$.
2. (*a*) What is the value of $(a+b)$ when $a^3+a^2b+ab^2+b^3=0$?
   (*b*) What number squared will produce $a^{\frac{1}{2}\sqrt{2}}+a^{-\frac{1}{2}\sqrt{2}}-2$?
   (*c*) What is the value x^3+x^{-3} when $x+x^{-1}=3$?
3. (*a*) $\dfrac{1}{1+x^{m-n}+x^{m-p}}+\dfrac{1}{1+x^{n-m}+x^{n-p}}+\dfrac{1}{1+x^{p-m}+x^{p-n}}$.
   (*b*) $(x^{pq}-1)\div(x^q-1)$. Give the first three terms and the last three terms of the quotient.
   (*c*) $a\times0=0$ and $b\times0=0\ \therefore\ a=b$. Discuss this statement.
4. (*a*) If $a^2+b^2=0$, shew that $a=0$ and $b=0$
   (*b*) $(b-c)(c-a)+(c-a)(a-b)+(a-b)(b-c)$ is always negative when a, b and c are real and not all equal. Prove
   (*c*) $x^5+y^5-x^4y-xy^4$ is positive when x and y are positive and unequal
5. (*a*) Solve $\sqrt[3]{1-2x}+\sqrt[3]{1+2x}=3$
   (*b*) $\left(\dfrac{x}{x-1}\right)^2+\left(\dfrac{x}{x+1}\right)^2=n(n-1)$
   (*c*) $\sqrt{a^2+cx}+\sqrt{a^2-cx}=\sqrt{2acx}$.
6. (*a*) Factor $(b+c-a-x)^4(b-c)(a-x)$
   $+(c+a-b-x)^4(c-a)(b-x)$
   $+(a+b-c-x)^4(a-b)(c-x)$.
   (*b*) If $\dfrac{a-b}{b-c}=\dfrac{a}{c}$ shew that $a^2+c^2>2b^2$.
   (*c*) Factor $1-\left\{\dfrac{a^2+b^2-c^2-d^2}{2ab+2cd}\right\}^2$.
7. (*a*) Find the G.C.M. of
   $(ax+by)^2-(a-b)(x+z)(ax-by)+(a-b)^2xz$,
   and $(ax-by)^2-(a+b)(x+z)(ax-by)+(a+b)^2xz$.
   (*b*) If $\dfrac{a}{b}=\dfrac{c}{d}$ shew that
   $$\frac{1}{ma}+\frac{1}{nb}+\frac{1}{pc}+\frac{1}{qd}=\frac{1}{bc}\left\{\frac{a}{q}+\frac{b}{p}+\frac{c}{n}+\frac{d}{m}\right\}$$
   (*c*) If $a^2+bc)^2(b^2+ac)^2(c^2+ab)^2=a^2-bc)^2(b^2-ac)^2(c^2-ab)^2$ then either $a^3+b^3+c^3+abc=0$, or $\dfrac{1}{a^3}+\dfrac{1}{b^3}+\dfrac{1}{c^3}+\dfrac{1}{abc}=0$.
8. A rectangular garden, sides $=p$ and q, has a path along the inside of its perimeter, width $=r$. Express the area of the path in terms of p, q, and r.
9. I went 56 miles on a railway, and the remainder of my journey on a stage. The train ran $\frac{1}{4}$ of the whole journey in the same time the coach travelled 5 miles. When I arrived at home the train was 35 miles beyond the station at which the stage left me. Compare the rates of the stage and the coach.
10. A sum of money, $P, is left to A, B, and C, so that as each comes of age at the end of a, b, and c years, he may have the same amount. Find their shares if the money be divided now.

Contributions.

PHYSICAL EXERCISE.

BY ALFRED CARPENTER, M.D. (LOND.), C.S.S. (CAMB.), VICE-PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

The narrow view of the function of the school-master is well exemplified in some schools by the entire banishment of physical exercise from the rota of school work. We send our children to school for the purpose of training them for the battle of life, which they will have to encounter when they reach to man's estate. It is by the equal and continuous development of each and every part of the body that this battle will be fought with success, and if one part developes at the expense of another, or by its more rapid development puts a bar to the progress of the others, the subject of it is at disadvantage in his future struggles. Many a Cambridge wrangler and Oxford first-class man has found this out in after life. He is able to solve a problem in differential calculus, to make Latin verses, or to read a passage in any of the dead languages at sight, but he has not cultivated the talent of common sense, or educated his muscles so that they can enable him to leap over some slight impediment in his path. He finds himself outstripped in the daily race by men whom he has been taught to despise, and who, in return, have a very small opinion of him and his mental power. The nerve force of thought in his brain has been developed at the expense of his motor power, and as the room for growth is limited, the later is dwarfed and imperfect. Life is 'organization in action,' and the various functional activities of the body must be carried out with normal energy and in a harmonious manner, if they are to be correct in their responses to any and every call that may be made upon them. Physical exercise is indispensable, and it is quite impossible for the functions of respiration and circulation to be carried on in a proper manner if the muscular system is not developed, and if the material which is necessary for the formation of the muscle is not used up in its proper order. If the muscles are not used equally with the brain tissue, some used up matter is kept back, and will sooner or later act as an impediment to proper brain work, by getting in the way of the latter when it requires all the room which ought to be at its command. The assimilative and disarranging processes of the body are greatly influenced by the activity or inactivity of the muscular system. Hence it follows that no school is properly constituted which does not provide an exercise ground for its pupils, and make the cultivation of muscular force a part of its daily routine. This is not the place to deal with the general effects of exercise, but it will not be out of order to call to mind the fact that, the natural heat of the body being 98 4, it follows that something must be produced in the blood which is the

débris of the continuous fire that is always burning, and by means of which the natural heat of the body is kept up to its proper standard. The principal product in this manufacture is carbonic acid (Co_2). The daily amount expired, as I have already shown, is very considerable; it is produced, in a great measure, *in situ* and must be removed from the body. The larger the quantity remaining in the tissues of the body, the more impure is the blood; and the smaller the quantity remaining behind, the nearer the blood is kept to its normal standard. Now it has been proved that taking the quantity expired during rest in the recumbent position as 1, or unity, there has been expired when a person is sitting, 1·18; standing, 1·33; walking one mile an hour, 1·9; walking two miles per hour, 2·76; walking three miles an hour, 3·2; riding on horseback, 4·; walking at four miles per hour, 4·; running at six miles per hour, 7·. Thus it is seen that the quantity excreted is increased seven times whilst running quickly, as compared with rest in the recumbent position. In connection with this elimination of Co_2, there must be a corresponding increase in the absorption of oxygen, and greater ability to maintain the animal heat at its normal standard, without requiring a warmer atmospheric air to live in. It will be easily understood by this one illustration how it is that exercise in the coldest air is accompanied by increased warmth. The union of the oxygen with the carbon, which is set free by the process of assimilation constantly going on in the body, and which union takes place in the muscular system more acutely than in any other part of the body, produces a warmth of a most decided character, and which production does not cease with the cessation of the exercise. The manufacture of warmth in this manner is very advantageous to children, and any complaining of cold should be persuaded to warm themselves by the combustion of carbon in their own frames, rather than be encouraged to obtain it by warm rooms and hot bottles to the feet, blazing fires, or any other means than by producing warmth within themselves.

There is also another aspect of the case; muscular tissue wastes during long continued rest. Any person may find this out for himself if he notes his muscular power before and after a few days of enforced confinement in bed; and there is no doubt also of the growth and increased strength of muscle by exercise. If any man changes his occupation, say from a clerk to a blacksmith, the comparison of power in the muscles of his arm at the end of a year will be found to prove this statement most efficiently; but if the blacksmith gives up his anvil and takes to the pen, within a year the powerful deltoid muscles which he formerly possessed will be dwarfed and comparatively imponent to power. Let a man or a boy have sufficient intervals of rest between his times of labor, and whether that labor is brain work or muscle work, it will tend to increase the power of the organ exercised, and the action of the one will by its own work clear the blood from the *débris* which has been produced by the work of the other. The more powerful minds will therefore be found among those men who do not neglect their muscular development; whilst the total neglect to mental work, which bodily labor sometimes compels the sons of toil to submit to, keeps them at a lower level in the scale of humanity than will be the case when both organs are allowed a chance by being worked alternately, as they ought to be in every well-ordained school. We must bear in mind that by exercise the individual fibres of a muscle increase in size, new molecules are developed from what are called the connective tissue corpuscules, which lie in the interstices between the fibres of the muscle. The contraction of the muscle is one of the means by which an ample supply of blood is brought for the nourishment of the new tissue. If this exercise is not forthcoming, the tissue dwindles and becomes fatty in its character, loses its proper elasticity, and does not leave room for new cells to take its place, for it is not removed in the way that a regularly-exercised muscle is. The elaboration of new muscle is the immediate effect of the activity of the old, and if the old is not used, it fails when a sudden call is made upon it.

It is, however, possible to carry on exercise to too great an extent, and whilst some schools ignore the necessity, others go on the wrong principle and carry it on to excess. So long as muscle conforms to what is called the principle of rythmic nutrition, its bulk and effective power increases; but long-continued over-exertion tends to induce a condition of chronic exhaustion, ending in wasting and decay. There must be time between the movements for the removal of *débris* and for the recharging of the battery of nerve power which directs the movements; otherwise the symptoms which indicate muscular exhaustion come on. These are sometimes very marked when exertion is confined to a very small class of muscles. It is sometimes so marked as to constitute a distinct disease, and is called by various names, as scrivener palsy, type setters', violinists', tailors', or milkers' cramps. Various trades in which only one set of muscles is used, and used continuously for many hours together, are subject to these conditions. The causes which produce such states give us insights into the conditions which are to be avoided in the playground. "Professional muscular atrophy" is the result of a condition which is the opposite to non-use.

Besides the muscles which may suffer from over-exertion, the blood vessels are liable to injury. Foundations are laid for mischiefs later on in life, and dilatation of the cavities of the heart, or of the large blood-vessels allow of aneurism being set up, or the smaller arteries and veins give rise to a state corresponding to varicose veins in the leg, which are the result of too long-continued muscular exertion. Athletic exercises, therefore, may be in themselves sources of danger, and violent and long-continued work, either at cricket, or boating, or at football, or in the racket-court, must not be allowed at all to those who are not trained to it, and who have not gradually brought their powers into accord with the work they are called upon to perform.

There is an outcry at times against the continuance of violent athletic sports. It seems to me highly undesirable that they should be abolished; they ought, however, to be carried on under regulations which the monitors and masters in the school should enforce. These pastimes, when carried on in large assemblages of young men, should be under regulations supervised by a responsible officer, and racing crews, football teams, and cricket elevens, intending to enter into contest with other similar parties, should be picked out from men who have been gradually inured to the work, and who have not been absent from proper drill for any length of time together. A boy has, perhaps, been away from school on account of illness or for some temporary cause; and after an absence of two or three months, on his return takes his place at the head of his team, he enters at once into some contest in which there is a call for sudden and long-continued exertion; the result is the foundation for a disease of the heart, or dilatation of some artery, which produces aneurism at some later stage of his life, or some other strain arises, the effects of which are permanent. Extreme exertion embarrasses the heart; the flow of blood is impeded from the right side of it, for the increased pressure of air from the inner surface of the air-cells impedes the flow of blood through the lungs. These air-cells are sometimes ruptured, and that happens in the boy which is recognised in the horse when a state of things arises which leads to the condition called "roaring." If there has been a proper training, this does not arise. The individual is said to have gained his "second wind;" he breathes regularly, and, under heavy and long-continued exertion, goes on properly, and he is enabled to continue up to the limits of muscular exhaustion, unless stopped by a stitch in his side. This stitch arises from the liver becoming engorged with blood, and it is unable to transmit the quantity through it which rapid exertion has brought into the venous system of the lower extremities and the bowels.

The skin flushes during active exercise, there is congestion of the cutaneous vessels, and perspiration results. This action keeps the temperature of the body at its normal standard. If the skin acts imperfectly, the accumulated heat excites languor and indisposes to further exertion, just as in the case of the lungs. If the boy is in good training, the circulation goes on properly. There is not profuse perspiration, but only sufficient to carry off excesses of heat. It is important, however, for boys to beware of the dangers which may result from the custom of trying to cool themselves when too hot, by allowing evaporation to be as rapid as possible. A large loss of heat takes place in this way. The pores of the skin are suddenly closed by the cold, and the discharge of the *débris*, which was taking place with the sensible perspiration, is stopped; the excretion is thrown back into the circulation in a state which does not belong to it, and, as a consequence, a condition arises which is called "taking cold." It really is a state of self-poisoning by returning into the circulation some morbid matter which ought not to be there at all, and which the skin was naturally excreting. When a boy is hot, it is better not to allow this gradual chilling to take place upon any account whatever. If he has been running just before he goes into his bath, let him strip and plunge in as quickly as possible, and come out again in a very short time. The bath will refresh him, and the reaction will bring back to the skin that which was being excreted; but if the vessels are allowed to be cooled too much, they will not again relax, and there is no power

to continue the process of exertion in a proper manner; the boy continues languid and tired, and it may be that a serious illness is set up. It is unwise to go into the water when in a great heat at all, unless a sudden plunge in and out is alone indulged in, in which case there is a refreshing action; but boys, as a rule, should not take violent exercise just before bathing.

Just as particular muscles may suffer from professional artophy, so certain parts of the brain may suffer in a similar way. If a boy is kept at one form of work too long—say if he is not allowed to do anything else than try to solve some of Euclid's problems, or if he sets himself to do some such task—it is possible that there may be over-strain of that particular part of the brain upon which mathematical power may depend, and such an one will never become a reasoning genius.

Brain-work must have its rythmical movement, as muscle. There must be time for the removal of used-up brain matter, time for the renewal of new tissue, and for the recharging of the nerve battery, which has been used up in the work which has been done. Teachers are great sinners in this respect. They neglect physical exercise themselves, and, as a consequence, get a low standard of health, suffering as much as most men from these conditions, which are styled billious, and which they connect with indigestion, but which really arises from the retention within their circulation of the *débris* of nerve tissue and the remains of used-up nerve force.

Space will not allow me to go into the different forms of exercise, or to analyse the muscular movements which are brought into play in each kind. The cultivation of muscle is being recognised as a part of school work, and each in its turn becomes a useful part of muscular training. "Training," says an eminent writer, "is to put the body, with extreme and exceptional care, under the influence of all the agents which promote its health and strength, in order to meet extreme and exceptional demands upon its energies;" but I have met with instances in which so-called "training" has done everything but this. It has not promoted health and strength, but has exhausted the bodily power, and done more mischief than good. The course of training which is recommended by the fast men of University life, or by the pugilists of fifty years ago, is not the training which boys and girls ought to submit to, except so far that the habitual use of intoxicating liquors is rightfully and reasonably prohibited; and stimulants are in no case required to produce a development of either mind or body. The requirements of a growing body are not the same as those which belong to the adult. In the one case, muscular exercise is used for the purpose of development; in the other, it is used to remove the *débris* which arises from the act of living, and in order to preserve the constitution from the dangerous result of the oxidation of this *débris* in the wrong place and at the wrong time. If one set of muscles develop in the child, and not the other, there is distortion of frame and a want of grace and of elegance in movements. The chest may be contracted, and the lungs deprived of the room which they ought to have for the necessary purification of the blood. Gymnastic and calisthenic exercises tend to produce a straight back and an upright figure; the avoidance of them may lead to round shoulders, twisted spine, stooping and shuffling gait, and shortness and imperfection of vision. The curvations of spine which are common to young girls in consequence of the want of exercise, lays the foundation of much of that mortality, or, at the least, of the acute suffering which follows upon child-bearing later on in life. Spinal curvatures are more common amongst girls than boys, because the latter do get more natural exercise than the former.

SHOULD CORPORAL PUNISHMENT BE RETAINED IN OUR SCHOOLS?

SUBSTANCE OF A PAPER READ BY STEWART MULVEY, ESQ., CHAIRMAN OF THE PROTESTANT BOARD OF SCHOOL TRUSTEES, AND MEMBER OF THE BOARD OF EDUCATION, BEFORE THE MANITOBA TEACHERS' ASSOCIATION, WINNIPEG.

As the duties of teachers and the discipline which should obtain in our schools are so closely connected with the question selected for discussion, that you will pardon me if I refer briefly to both. The duties of school teachers are to train up and educate the youth of our lands, develop their mental powers, fill their minds with such useful knowledge as will raise them to a state of civilization and refinement, so that when they arrive at mature years enter forth into the world and battle with its cares, by the instruction received at their teacher's hands; they become better men, useful citizens of the world, an honor to themselves, a blessing to their parents, and a credit to their teachers. The office of teacher is consequently an important and responsible one, and he occupies a most peculiar position in society; with the young and irrepressible mind spread out before him as a pure tablet upon which he may write what he will, with a virtuous mind to be cultivated, and all his future destiny to a great extent to be moulded by him. Should the teacher neglect his duty, when the time arrives when he shall be called upon to give an account of his stewardship I cannot see how he can do so with a clear conscience. The personal influence of the faithful and zealous teacher marking its deep impressions, unconsciously operating in every word of encouragement or reproof, trains the youthful mind to yield to generous impulses and develops into salubrious activity the moral principles, without which education, instead of a blessing, would become a curse.

* * * *

Then for the teacher to discharge his duties zealously and efficiently there must be proper government and discipline in his school. Without these all his labors are in vain. In fact there must be authority in all good organizations; and there must of necessity be submission to that authority. Authority which cannot enforce itself is utterly valueless. All admit that in society and good government law must be enforced, and this is certainly no less true in the school room. The rules must be obeyed, and to say that those who cannot be persuaded to obey must be suffered to disobey is to strike at the root of all good government. We must observe that learning knowledge—knowledge of things is not the sole object of teaching. If the child in school never learned one fact or principle in knowledge, would he have been idly employed if he acquired a proper discipline of heart and mind and body? If it brought his body to regular habits, his mind to think his heart to feel right emotions, would not one of the greatest objects be obtained? What would our noble army and navy be without British discipline and its excellent army regulations? It is said by historians and confirmed by the gallant Nelson himself, that a great deal of his success in the many hard fought battles, in which he which he was engaged, and the victories which he attained, might to a great extent be attributed to the severe discipline which he was compelled to undergo while attending his own village school. And was not the brave Iron Duke himself a strict disciplinarian? Was it not strict British discipline which battered down the walls of Torres Vedras, and scattered the French forces at Waterloo, and sent the great disturber of nations, the mighty Napoleon himself, to the solitary dungeon at St. Helena? And at a later period, was it not the same discipline which the renowed Napier enforced which led his forces to surmount all difficulties and overcome the almost insurmountable barriers of Ethiopia to storm the walls of Magdala, disperse the blood-thirsty forces of Theodore and set British prisoners free? And later still, was it not the same discipline which enabled the gallant and renowed Wolseley to conduct the first expedition of Canadians over fifteen hundred miles of mouutain, lake and woods, from Toronto to Winnipeg, without the loss of a single man? I make bold to say, without assuming the name of prophet, that this comparatively new Dominion of ours stands in danger from no cause so much as the want of discipline in the young men at our schools, those whose future actions shall bright or dim our country's glory. * * * *

But how is this discipline te be secured? This brings me to the consideration of the question proposed for this afternoon's consideration. The question of how to best insure correct discipline in our schools, or whether corporal punishment ought to be resorted to in cases, is one which is attracting the attention of educationists in this couutry and the United States. By the wisely framed school laws of this Dominion the teacher stands to the pupil *in loco parentis*, he is the substitute for the parent, and is charged in part with the performance of his duties. Within the sphere of his authority, like the parent in home government of his child, the teacher is the judge, when correction is required. And like all others he is entrusted with a discretion and cannot be made personally responsible unless he administers unreasonable correction and then neither parent or teacher is permitted by our laws to abuse a child. I do believe that the different degrees of tempers and passion of little ones render this power in teachers' hands necessary, and let us not suppose that there are not teachers and parents whose passions often present them in exercising that prudence and sound judgment by which they should be governed in cases which require corporal punishment. But when we look over the whole of the Dominion of Canada with nearly 13,000 teachers, and see how few complaints are made against them in the exercise of this power, and how seldom they are brought before courts of law, we are compelled to believe that teachers are rather to be admired as a body for humane treatment of pupils than to be condemned for unreasonable severity. On the contrary, if this were the only test of their discipline, we should be afraid that they rather fell short of than exceeded their just powers of government, as administered in our schools, is not so frightful a thing after all, although in the minds of some it is considered nearly as bad as capital punishment itself. Wherever it is administered cruelly or severely, it is an evidence that the teacher is unsuitable for his office, and should not be retained for a single day. But, then, if it were abolished, a harsh teacher has other methods of indulging in severity, many of them far more objectionable than the milder form of corporal punishment as practised in our schools. If the power to inflict corporal punishment were taken out of the teacher's hands, are there not many other means of torture, and, I might say, cruelty, far more objectionable practised in those schools which are pretended to be governed by love. Deprivation of recess is injurious to the health of the pupil, who more than any other requires the pure air or the opportunity to get rid of the superabundant energy of his nature that, pent up in the school room, perhaps drives him to commit the mischief for which he is punished. Expulsion or suspension from school is often suggested as solving the difficulty, but they who rely on this, as it seems to me, can hardly have considered the usefulness of education, and the necessity for all to be brought under the privilege of acquiring it. The object of our Manitoba school law is that all the children should be received in the school room and derive its benefits, not that they should be expelled from it. Therefore, very weighty objections lie in the way of this mode of punishment. Again, there is something exceedingly repulsive in holding up a pupil to ridicule before the whole school, such as tying their hands behind their backs, standing upon one foot, and numerous other means resorted to by teachers to enforce discipline. Many a person, perhaps, dates a life of shame and suffering back to the hour when, a sensitive child, he was made by his teacher, for some trifling fault, the laughing-stock of the whole school. Detaining a pupil after school, I find by experience to be no substitute for corporal punishment, as it often produces family inconveniences, and punishes the unoffending teacher as well as the guilty pupil, and right well the little urchins know it. * * * *

In extreme cases where teachers meet with unruly pupils, possessed of such angry passions, where preaching, and coaxing, and friendship are ineffectual. I would advise all teachers to try what virtue is to be found in an external application of that social science Sermonizer—the rod. I know by experience that with such children a tincture of ferrule does a vast amount of good. And so long as my common sense tells me that some of my pupils are the better for it, so long will I use it. The wisest of men, Solomon, King of Israel, tells us that "he that hateth his own rod," and who will have the hardihood to say that Solomon was not fit to be a school teacher. Some parents will say "oh, don't punish my children, they seem to be so much afraid," others will say "flog them," "lay the gad on," &c. After carefully listening to all these wise suggestions, together with many more, to all such I make one reply, and that is, that after mature consideration, aided by nineteen years' experience in teaching, I have come to the conclusion that where my judgement tells me to govern by love, I invariably do so, but that where children are too often neglected at home, and that necessity requires that the rod should be called into requisition at school, I will never refrain from so doing, and I always am sure to let the pupil know this. If ever I entertained the opinion that pupils should be governed solely by love, I assure you, gentlemen, that I have long ago given it up, because I always found that a school govered by love was like a ship without a rudder, perfectly unmanageable and liable to be tossed to and fro. The master must deal with human nature as he finds it; the great God himself did not make all human beings with tempers and passions alike, and so long as humanity is possessed of uncontrollable dispositions, so long will transgression require severe chastisement. Compare the school room to the world we live in, and dispense with all laws and penalties, and what, I ask, will the world come to? The laws of our country have very wisely given to the teacher power to inflict corporal punishment, and let us all be careful not to abuse it, and depend upon that if we only exercise it cautiously, all good thinking parents, school trustees, superintendents, school officers, and the high courts of our country, will sustain us, and prevent all undue interference in the discharge of our duties. The day may come, but I confess it is a long way in the future, when the application of the rod will be unnecessarry, when teachers and parents will be able to govern by moral suasion, but that must be at the time when "the lion shall lie down with the lamb and a little child shall lead them." And while I am decidedly of the opinion that the power to inflict corporal punishment should be retained in our schools, I am also of opinion that it and all other punishment should be sparingly used. Far sooner would I that one hundred guilty ones should go unpunished than that one innocent child should suffer.

The teacher who can govern without wicked frowns or the too frequent repetition of the rod, I declare to be the best teacher. I do not believe either that the little ones are sent to our schools to be made dummies of; that during the six hours out of twelve they should be housed up in the school-room as silent as death. I do not believe that the teacher should flourish his ferrule over their heads during these tedious hours each day; and if the inclination is not for study, compel them to keep moving their lips at least. Unfortunately I see such too often practised. Faithful teachers should endeavor to make, to these little ones, the school-house a house of pleasure instead of a house of pain. Whatever provocation the teacher may receive, he ought to maintain his temper, never to appear angry, and, if he should happen to get a little excited, he should not let the sun go down upon his wrath. Call not the children hard names, and do not discourage them. For the sake of the children and their future interests, dispense with fault-finding and scolding in the school room. Let not such words as dunce, blockhead, etc., etc., ever escape your lips, as the school room is not the place for such, and the teacher who uses such expressions is more deserving of corporal punishment than the worst pupil. Cause all the children, if you can, to go through their studies with cheerfulness, and if possible, at times to create amongst them a hearty laugh, as it is the best education medicine which they can receive, and then you will be surprised to see the hum of business in the school, as everything will be done willingly. Above all, show no favor or partiality, as the little ones are very sensitive to such, and there is nothing which harrows the feelings of a sensitive child or a sensitive parent as to think that the teacher punished him and permitted others equally culpable to escape. One such imprudent act may mar the harmony and establish in the mind of that child such a feeling of hostility against a teacher which even grey hairs cannot obliterate. It is well known that in times gone by the mode of inflicting corporal punishment in the schools was not such as to establish in the memories of the pupils a very great amount of veneration or affection for the gentleman who administered it. * * * * *

And now, in conclusion, permit me to give my experience in the matter, and it is this: I always found that ninety per cent. of my pupils could at all times be governed by the laws of kindness and love, and with such I never found any necessity for corporal punishment, but I regret to say that the remaining per centage, or less, I found to be unruly, headstrong, quarrelsome little fellows, who by their conduct would continually keep the school in turmoil and the teacher in hot water, pupils who were frequently guilty of crime, and when brought to an account, would lie to exonerate themselves. With all such, I say, and say boldly, that I found three and a half feet of which the Irish Dominie called *lickum candy* to be worth about ten yards of moral suasion.

OBJECT LESSONS.

BY T. MARCHANT WILLIAMS, B.A., INSPECTOR TO THE LONDON SCHOOL BOARD.

A paper read before "The Education Society," London.

A French writer on Education, after expatiating eloquently on the uses of Object Teaching, very pertinently asks the question,—Why, if the Object Lesson be so useful, do not teachers avail themselves more frequently of it? He hazards an answer to the question, and it is,—that the Object Lesson, to be really useful, must be carefully prepared before its delivery, and this careful preparation necessarily involves a great deal of trouble, which to teachers is distasteful. There is some truth in this answer, no doubt; and, regarded as an answer to the question as having exclusive reference to French teachers, there may be in it more truth than an English teacher would feel disposed to admit, if applied to himself; but rely upon it, the whole of the truth is not enshrined in the answer, even though it be assumed that the question has reference solely to the teacher of a French elementary school. Unproductive or unremunerative trouble is distasteful, and ought to be distasteful, to all teachers; but, I take it that there are very few, if any, teachers who are so purblind as to suppose that time and care judiciously spent upon the preparation of lessons are wholly, or even partly, unfruitful. What teachers usually forget is, that the fruits of their labour are frequently slow in making their appearance; they lack the requisite patience to wait for the legitimate outcome of judicious effort to reveal itself; and Object Teaching is neglected therefore, partly, because it does not seem to yield quick returns.

But I have not yet stated all the reasons, nor indeed the chief reason, why teachers of public Elementary Schools in England so rarely take full advantage of Object Teaching. The omission is not entirely the fault of the teachers, but is mainly due to the system under which they work. It is not unusual, at gatherings of teachers such as this, for speakers to angle for approval and applause by making a fierce onslaught upon the Code and its ingenious originator. I would hope that I am above such a paltry rhetorical trick; and therefore, while readily admitting the genius and skill of the framer of the Code, the reasonableness of the general principle upon which it rests, the justness and fitness of many of the gentlemen whose businees it is to interpret it, I must claim the privilege as an educationist to declare that, in its present form, it is by no means free from grave faults, one of the most important of which is its inflexibility. The teacher is too much fettered by it and its interpreters; he is allowed but scanty scope for independence of thought and action, but is kept in a narrow groove out of which he dare not escape save at the risk of hopelessly failing to produce the particular results which possess a value in the educational market. Who dares pay due attention to Object Teaching, when the results of such teaching will be studiously overlooked by those in whose keeping are not only the teacher's professional reputation, but even the means of his subsistence? How can the teacher of a public Elementary School exercise the watchful patience of a skilful educationist, when he is distinctly bidden by the powers that be "to get through, in a fixed interval of time, a fixed amount of work, in a fixed direction; and any work that he may feel tempted to do in any other direction, will be ignorod or *pooh-poohed* by the very men whose ignoring and pooh-poohing mean clear loss to the teacher of money, and clear damage to his professional reputation.

But what is an Object Lesson, and what especial purpose is it intended to serve? An Object Lesson, as it frequently if usually is, is a lesson on the general appearance, properties, and uses of an animal or thing, selected at random, and considered apart from, and independently of, other animals or things. As a general rule, the order in which the Object Lessons one hears at our schools follow one another, does not rest on a pre-arranged plan; the sequence of subjects has not been controlled by the laws of mental development. In short, there is an entire absence from such lessons of what may be termed scientific consecutiveness even the universally accepted educational principle, which demands a procedure from the Empirical to the Rational and not from the Rational to the Empirical, being violated in many if not in most cases. Be it clearly understood that I do not advocate the strict observance of an inflexible rigidity in the arrangement of subjects, or even an unalterable method of arranging the subject-matter of a lesson. No, some lesson might very properly begin the "uses" and end with "properties" or "appearances"; and the lesson on the dog might advantageously precede that on the cat, or a lesson on a thing might either follow or precede one on an animal. All I would insist upon is, that the easy should lead to the difficult, and that the teacher, in drawing up any particular lesson, or in arranging a course of Object Lessons, shouid ever keep in view the important fact that Object Teaching has a special purpose to serve, which purpose can be fully served only when the teaching proceeds strictly along the path which is hedged in by the laws of mental growth and development. M. Buisson, one of the most enlightened inspectors of French primary schools, remarks that "the Object Teaching should pervade the work of the school, and should be the soul of all the teaching. It should prevade it," he continues, "as does the leaven the bread, that it may give life and heat and motion to the heavy cold mass of technical work which primary instruction can never dispense with." He further adds that he would not like the Object Lesson to begin and end at a fixed hour.

As an indirect criticism on the Object Lesson as it is given at the present day in English, French, and German elementary schools, M. Buisson's words are very appropriate, and merit retention; better have no Object Teaching at all than have what often passes under that name now, and which seems based on ill-arranged text-books, and is chiefly intended, one would think, to cram the crude and disconnected facts compiled together in these books down the throats of our credulous little children, whose power to swallow such facts, be it remembered, is far greater than their power to digest and assimilate them. Buisson is right in advocating so eloquently the banishing from the schools of his country the idle talk about the opacity of coal, the transparency of glass, and the porosity of sponge, and the substituting for it an Object Teaching *spirit* which shall permeate and vivify and illumine the whole work of the school. His mistake, it would appear to me, is, to suppose that this in itself wouid be enough; or, in other words, to suppose that it is not possible to arrange for the delivery of a set of Object Lessons which shall be given at regular intervals and which shall prove of the highest educational value, and at the same time to have the study of the cold and ponderous technical subjects lightened and brightened by the Object Teaching spirit. In fact, this spirit is essential in all schools and in all the work of a school. If it be absent, the work becomes mechanical, monotonous, and irksome: the school becomes a stifling hot-house, instead of a child's garden, spreading itself under the open blue sky with heaven's sun shining upon it and heaven's breezes playing upon it.

Let me observe, by the way, that there are few recent writers on Method who have written exhaustively on this subject of Object Teaching, and still fewer who have written profoundly upon it. The chapter which is devoted to it in Prof. Bain's "Education as

a Science" is the best I know of on the subject. This book ought to be in the hands of every teacher, and this particular chapter should be read and re-read by all who are interested in the training of children. One of the chief defects of the book is the stiffness and aridity of its style, just as it is one of the chief merits of Mr. Fitch's able "Lectures on Teaching" that the style is so even and entertaining. Mr. Fitch has very little that is new to say on Object Lessons, unless you would consider that his observation, that "The lesson must have a beginning, a middle, and an end," savours of novelty. We all know that what Mr. Fitch really means, is that every lesson should be methodically arranged in the teacher's mind; although I must admit, that when I first stumbled upon the dogmatic statement, I felt strongly interested to know if it be possible to draw up a lesson that shall have no beginning, which therefore can have no middle, and which shall be endless. Wagner's criticism of Mendelssohn would be fairly applicable to Fitch, in so far as his treatment of the Object Lesson is concerned,—"He has very little to say, and he says it like a gentlemen." Buisson's admirable paper on Object Teaching will be found in the volume of pedagogic lectures delivered at Paris in 1878 to the teachers who had come to see the Exhibition. The only other writer on the subject I would specially recommend to your notice, is Madame Pape Carpentier, the Inspectress of French Infants' Schools, whose books on School Management and Method are pregnant with admirable and helpful suggestions. She has written extensively and well on Object Lessons.

But all this is digressive; let me return to the consideration of the question, *What are the uses or purposes of Object Teaching?* The Object Lesson, according to most writers and teachers, is intended to teach or train children (1) to observe or see, (2) to group and compare what they see, and (3) to embody the result of their observation and comparison in words. To look is one thing, to *see* is another and a different thing; the former is easy and natural, the latter implies an active effort of the mind. One cannot see or observe without exercising the power of discrimination. Intellectual effort rests on discrimination; and, according to our psychologists, "the consciousness of difference is the beginning of every intellectual exercise." The child recognises and describes one object as a *large* table, because it is able to recognise and describe the resemblance and difference between it and another object which it speaks of as a *small* or *smaller* table; and the child knows the cat to be a different animal from the dog, because it has *seen* both, and, having seen the one and the other, it has discriminated between the one and the other. The greater the delicacy or perfection of this discriminating or seeing power, the greater the variety of our impressions and our resources for physical and mental enjoyment, and our opportunities and advantages for mental development. The Object Lesson, then, should be described as a lesson which aims at cultivating or strengthening this power of discrimination, which reveals itself in every child at a very early age, and which has been partly cultivated in the family circle long before the child is placed under the care of the teacher. Rather than say, therefore, that the Object Lesson is intended to serve as the means of teaching children to observe *and* compare, I would say, that it aims at giving them a training in the art of seeing, by giving them an opportunity of comparing objects and noticing their points of agreement and difference. It serves also to extend a child's vocabulary, and to awaken and cultivate the retentive powers of his mind. The child's sensations are wrapped up in words which are to recall the sensations to the child's mind when subsequently used for the ordinary purposes of life. The first Object Lesson was given by the first mother; but it is Pestalozz that has the merited credit of having first propounded the Object Lesson as a means in the hands of the teacher of training children to see well and to speak well. Pestalozzi, in reality, merely developed the favourite idea of Rousseau, and this idea was suggested to the distinguished author of *Emile* and the *Social Contract* by his observation of the instinctive habits of mothers. Dr. Bell and Joseph Lancaster, in former days, used to contend for the great distinction which attaches itself to the discovery, or, if you like, the invention, of what is known to teachers as the Monitorial System. The real inventor of the system was neither Bell nor Lancaster, but was the mother who first put one of her children to mind the baby. We all know that Miriam, the sister of Aaron and Moses, was an unpaid monitor, and she lived and flourished even before either Bell or Lancaster; and further, it may be well to remember that Pestalozzi had adopted the system before its advantages had been realized by Bell at Madras, or by Lancaster in the Borough Road.

But the Object Lesson with Pestalozzi was more of a lesson on words than on the differences and agreements between animals or things; and this must not be attributed to a disposition on his part to attach more importance to words than to things, but rather to the circumstance that he attached little or no importance to words apart from the things. His was the earliest attempt to utilise a great but old idea for educational purposes, and had he been more familiar than he seems to have been with the psychology of the human mind, and a greater master of discipline, his Object Lessons would have been far better than they were. He divided Intuition into three elements or parts—Number, Form, and Language. His Object Lessons, therefore, were intended to supply children with answers to the three questions—How many objects are there? What are they like? What are their names? One of his old pupils, Reaumur, thus describes one of his Object Lessons:—

"The exercises in language were the best things we had with him, especially those which related to the paper-hangings on the schoolroom walls, and which were real exercises of Observation We used to stand for hours together in front of these hangings, which were old and torn, engaged in examining the pattern, the holes and the rents in them, noting their number, form, position, and colour, and formulating the result of our observations in phrases of graduated length and difficulty. On these occasions he would ask us,—'Boys, what do you see?' (He never named the girls.)

'A hole in the paper, a rent in the paper.)

P. "Very good; repeat after me,—'I see a hole in the paper, I see a long hole in the paper, Behind the hole in the *paper*, I see the wall, &c.; I see figures in the paper, I see black figures in the paper, I see black and round figures in the paper.'

"Of less utility," continues Reaumur, "were those exercises in language which he took from natural history, and in which we had to repeat after him and at the same time to draw the animals mentioned. He would say,

'Amphibious animals,
Crawling amphibious animals,
Creeping amphibious animals,
Monkeys, long-tailed, short-tailed.'

We did not understand a word of all this, for not a word was explained; and the whole was uttered in such a sing-song tone, and so rapidly and indistinctly, that it would have been a wonder if any one had understood anything of it, or had learnt anything from it; besides, Pestalozzi shouted so very loudly, and so incessantly, that he could not hear us repeat after him, the less so as he never waited for us when he had read out a sentence, but went on without intermission and read off a whole page at once. What he thus read out was drawn up on a half-sheet of large-sized mill-board, and one repetition consisted, for the most part, in saying the last word or syllable of each phrase thus:—'Monkeys, monkeys,' or 'keys, keys': there was never any questioning or recapitulation."

This is a very graphic description of the Object Lesson as it was in the hands of its propounder,—a great teacher notwithstanding his many imperfections, a nan who aimed at reaching the loftiest ideals, but of whom it is related that he was frequently found weeping like a child with his face buried in his hands, and reproaching himself bitterly for not knowing how to do better than he did.

For the sake of useful comparison, I will here attempt to give you a description of an Object Lesson which was given in my presence the other day, at a good Infants' School, by an assistant teacher of more than ordinary intellectual and personal gifts. The subject was Water; the audience consisted of the children forming the 1st and 2nd classes below the Standard. They filled a large gallery at one end of the room, and numbered 83—clearly too many for one teacher. On a small table before the class stood a tumbler half-full of water, and near it stood a small wire tripod, upon which rested a small spirit-lamp. The other appliances for the lesson were a blackboard on an easel, a duster, a box of lucifer matches, and a piece of chalk, one end of which was daintly wrapped up in a piece of paper. The first question asked the children was, "What is this I have in this glass?" "Water," was the immediate reply. "Yes," replied the teacher, at the same time turning her back to the class, and writing the word "Water" on the board, not forgetting to give a gorgeous flourish to the initial letter. Then, facing her class once more, she gravely informed it that she purposed giving a lesson that morning on Water. The second question put to the class was, "Where do we get Water from?" The answers to this question were many. "From the clouds,—from God,—from the sea,—from the rivers,—from the New River Company," &c.

All of these answers were skilfully utilised, and it was eventually made clear that Water comes from the clouds, is found in the sea and in rivers, and forces itself out of the earth sometimes in springs. The word *sea, river, cloud,* and *spring* were in due course written on the black-board, and were afterwards spelt simultaneously by the children.

The next step was to enquire into the chief properties of water, which were declared to be—(1) *Softness,*—a child being called up to to the tumbler, and thereby proving to them that the water yielded to the gentle pressure exercised upon it. (2) *Transparency.*—This was proved by dipping a pencil into the water, and also by placing it behind the tumbler: the pencil was declared to be visible by the children in each position, who were then bidden to say together, "Water is transparent." The teacher insisted strongly on the fact that water is said to be transparent because we can see through it. The words *soft* and *transparent* were written on the black-board. (3) The teacher endeavoured to show that Water could be converted into Steam, and that Steam was therefore Water, by pouring Water into the pan, lighting the lamp underneath it, and afterwards holding the tumbler, which had been emptied and dried, over the Steam. The sides of the glass were found, after a time, covered with visible moisture.

The third and last step was to discusss the *uses* of Water. It was said that Water was a sort of food, and was also used for washing and cleaning purposes. "Washing," "food," and "cleaning" were written on the board, and the lesson was then over.

You will have perceived that this was a typical Object Lesson, and, whatever may have been its faults, it is but fair to admit that it was a decided improvement on Pestalozzi's lessons on long-tailed monkeys and the long hole in the wall-paper. The main defect of the lesson was, that most of the time was spent in talking about what the children already knew. Every child in the class knew that it could thrust its finger into water, that clean water can be seen through, and is used for drinking and washing purposes; but they did not know that, because it can be seen through it is said to be transparent, nor was it necessary that they should know it, at that stage of their school career. The child's vocabulary is not really extended if it be taught words which it cannot use.

The great problem we have to solve seems to me to be this:—How can the Object Lesson be made to serve as a basis for a systematic course of instruction in Science? To put this question in another form. How can the Object Lessons given in Infants' Schools be so arranged, and so delivered, that they shall provide the children with a useful preliminary training in the art of observing the facts, which are again to be studied more extensively and thoroughly in the various stages of their course through the senior departments of the school?

One way of effecting this will be, for the teacher to study carefully the elements of one or more of the Sciences—say Botany or Chemistry or Electricity—not merely by reading the ordinary books on these subjects, but also by studying the things themselves about which these sciences relate, the laws and facts revealed in the books being tested by every possible experiment. Having done this, the teacher will select the most suitable objects for the lessons—the suitability of the objects being dependent upon their accessibility to the teacher and children, and their fitness to illustrate the most important elementary facts of science. You will please bear in mind that the main use of the Object Lesson is to train and develope the perceptive faculties of the child; to add to his stock of usable words, and to supply his memory with facts, are subsidiary purposes.

If this suggestion be acted upon, the teacher will not on that account be fettered in the least degree as to the choice of subjects or the order of the lessons. For example, the lesson on a stick of sealing wax may be immediately followed by a lesson on silk, and this again by a lesson on paper, or glass, or a cat, or on an egg. The principle of attraction may be illustrated by rubbing and warming a piece of sealing wax, the fur of a cat, a piece of india-rubber, or of brown paper This principle might be taught, by experimenting on a variety of objects, in one lesson; or it may be taught incidentally, and together with other principles and facts, by experimenting on objects in a series of lessons.

My plan does not exclude the possibility of having an endless variety of lessons, of objects, and of methods. All it necessarily implies is—

(1) A previous mastery by the teacher of the facts to be taught.
(2) A careful selection of subjects and experiments.
(3) Thorough preparation.

The plan involves trouble—trouble usually commands success.

Bain thus enumerates the ordinary defects of the Object Lessons of the present day:—

(1) Needless or superfluous communication.
(2) Obscurity of word and thought.
(3) Bad arrangement.
(4) Unreasonable digressions.

Think of these; and pray think, also, of the following suggestions with which I venture to close this paper:—

(1) Spend no time in telling children what they already know, or what they are likely soon to know by their own unaided efforts. All the time at your command will be needed for the explication of facts which the children are not likely soon to find out without your aid.

(2) Use the simplest words.

(3) Illustrate everything capable of illustration by experiment. Most wonderful and suggestive experiments can be made with very cheap and easily constructed apparatus.

(4) Be most careful to see that the experiments shall always come off, so to speak, without the least waste of time. This will demand the most careful preparation and the exercise of great forethought and skill and patience.

(5) Follow no rigid rule as to the divisions of the lesson.

(6) Be careful to utilize, as far as possible, both the good and the bad answers.

(7) Make judicious use of the black-board. The teacher should never lose the attention of any children in the class, though the black-board be frequently used for sketching and writing purposes.

One last word. All this cannot be achieved without great effort on the part of teachers, and a far greater measure of liberty in the choice of subjects and of methods than the teachers of Public Elementary Schools now enjoy.

Dr. Gladstone spoke of the growing importance of Object Lessons in the eyes of Educationists both in France and England, and said that there was a strong movement now in favour of making the giving of Object Lessons a necessary condition for obtaining the grant in Elementary Schools.

Mr. Langler did not entirely agree with Mr. Williams. He was certainly of opinion that it is more important *how* we teach than *what* we teach; but, on this very principle, he protested against Mr. Williams' claim, that a teacher, to give satisfactory Object Lessons, should be well acquainted with one or two sciences. Of course, the better informed a teacher is, the better he teaches; but it is not necessary that the Object Lessons should consist in consecutive lessons in Botany, Electricity, or any one science. Every lesson on any subject whatever, if it goes upon the lines indicated by Mr. Williams, may be in itself complete, and give that training in observation and inference which is more important than knowledge of any particular facts. The custom of writing up the names of the qualities of the object on the board, is simply folly. The most important effects of Object Lessons are the mental discpline, extension of the vocabulary, and the culture that comes through contact with a superior mind.

Fraulein Heerwart said, if Pestalozzi has paved the way for the introduction of Object Lessons, he has done good service in showing the importance of bringing the child into contact with objects and letting it observe. In the Kindergarten, the object is always put in the child's hands—without that, an Object Lesson is useless. It is always a pity if children are not, from the first, in the habit of being introduced to nature, by taking them to it, or taking it to them.

Dr. Gladstone.—It is astonishing that more attention has not been given to this subject; for the child has been having Object Lessons informally long before school-days from its mother and friends, and then in the school the whole of this has been thrown aside and words only been taught. A vicious system is not altogether eradicated when the evil of it has been seen and it has been apparently thrown aside, and so merely verbal teaching has permeated the Object Lessons themselves. Naming things and qualities is not really the Object Lesson—that is, seeing, feeling, and testing the object. The very essence of the idea of an Object Lesson is, that the various properties of objects, and their difference from the surrounding objects, should be learned from sense-perceptions. Mr. Williams has rightly insisted that the Object Lessons shall form a connected whole; but that object should be attained, not by teaching one or two special sciences, but rather by a root-science, out of which the special sciences afterwards differentiate themselves. A great deal more might be done than is generally done, in the way of description and drawing, and the children should do both.

General Information.

GIANTS.—We of the present day are mere "Tom Thumbs" when compared with the huge individualities of antiquity. The Giant Galbara, brought from Arabia to Rome, under Claudius Cæsar, was nearly ten feet. Funnman, who lived in the time of Eugene II, measured eleven feet and a half. The Chevalier Scrog, in his voyage to the Peak of Teneriffe, found in one of the caverns of that mountain the skull of a Guance, which had eighty teeth, and it was supposed that his body was not less than fifteen feet long. The Giant Ferragus, slain by Arlando, nephew to Charlemange, was eighteen feet high. In 1614, near St. Germain, was found the tomb of the Giant Isoret, who was twenty feet high. In 1590, near Rouen, they found a skeleton whose skull held a bushel of corn, and whose body must have been eighteen feet long. Platerus saw at Lucerne the human bones of a subject nineteen feet long. The Giant Buotrat was twenty-two and a half feet high; his bones were found in 1705 near the banks of the river Moneri. In 1613, near a castle in Dauphin, a tomb was found thirty feet long, twelve wide, and eight high, on which were cut the words, "Keutolochus Rex." The skeleton was found entire, twenty-five feet and a half long, ten feet across the shoulders. and five feet from the breast-bone to the back. Near Mazarine, in Sicily, in 1516, was found the skeleton of a giant thirty feet high. His head was the size of a hogshead, and each of his teeth weighed five ounces. Near Palermo, in Sicily, in 1548, was found the skeleton of a giant thirty feet long, and another thirty-three feet high, in 1550.

BANDS of music are forbidden to play on most of the large bridges of the world. A constant succession of sound-waves, especially such as come from the playing of a band, will excite the wires to vibration. At first the vibrations are very slight, but they will increase as the sound-waves continue to come. The principal reasons why bands are not allowed to play while crossing certain bridges—the suspension bridge at Niagara Falls, for instance—is, that persons following the bands, as a general thing, will keep step with the music, and this regular step causes the wires to vibrate. On suspensions bridges military companies are not allowed to march across in regular step, but they are compelled to break their ranks.

THE BIBLE may be divided as follows:—

	Old.	New.	Total.
Books	39	27	66
Chapters	929	260	1,189
Verses	23,214	7,959	39,173
Words	522,434	181,253	773,692
Letters	2,728,100	838,380	3,566,480

HISTORY OF GLASS.—In the year A.D. 676 "messengers were sent out," according to Bede, from Wearmouth, England, to Gaul, France, to fetch makers of glass (artificers?), "who were at this time unknown in England, that they might glaze the windows of the church, with the cloisters and dining-rooms." Bede adds that "they taught the English nation their handicraft, which was well adapted for inclosing the lanterns of the church, and for the vessels required for various uses." About this time Archbishop Wilfred, of York, "filled with glass" the windows of the cathedral, previously "open to the weather," and "such glass," says one, "as permitted the sun to shine through;" from which it may be inferred that glass was made that was impenetrable to the sun's rays. It was recorded, in connection with this cathedral, that "great astonishment was excited, and superstitious agency suspected, when the moon and stars were seen through a material which excluded the inclemency of the weather." Still, the adoption of glass was slow, form 1214 Robert de Lindeley, Abbott of Peterborough, employed glass "in beautifying thirty of the windows of his monastery, previously stuffed with straw to keep out the wind and rain;" and for some generations later the domestic windows of England were not furnished with glass, but lattice. When glass windows were first introduced they were not fixtures, but were regarded as movable chattels, and were so considered until A.D. 1600.

MUCH interest is now being taken by scientists in regard to the habits, instincts and emotions of fishes. Naturalists have generally accepted Cuvier's view—that the existence of fishes is a silent emotionless, and joyless one; but recent observations tend to show that many fishes emit vocal sounds, and that they are susceptible of special emotions, particularly such as regard for their young, attachment between the sexes, and for locality. Among monogamous fishes there is often seen decided evidence of watchfulness over their young, in which the males not unfrequently act an important part. Among nest-building fishes the male often prepares the nests. Among some who do not build nests the eggs are carried about in the cheek-hollows of the male. Cases have been noticed where male fishes have remained in the same spot in the river from which the female had been taken. A case is noted where, after a pair had been separated, both appeared miserable and seemed nigh unto death; but on being united again both became happy. In fish-battles it is sometimes noticed that the conqueror assumes brilliant hues, while the defeated one sneaks off with faded colors, the change evidently being brought about by emotional feelings. Some fish organize for common defence, or to attack a common enemy.

Examination Questions.

PUPIL TEACHERS' EXAMINATION PAPERS.

THREE HOURS AND A HALF ALLOWED.

ARITHMETIC.

MALES.

1. If a pole 10 feet high cast a shadow 12 feet 8 inches long, how high is a tower which casts at the same time a shadow 57 feet high?
2. Compare the cost of 150 oranges at 9½d. a dozen, and that of 3½ lbs. of tea at 2s. 10½d. a lb.
3. Find the total cost of the following:—
   3019 articles at 18s.
   517 articles at £1 18s.
   2466 articles at 16s. a dozen.
   620 dozen at £2 4s. per score.
4. How many yards worth 3s. 7½d. should be given in exchange for 935½ yards worth 18s. 1½d. per yard?
5. 518 ac. 3 rd. 7¾ poles at £118 7s. 6d. per acre.

FEMALES.

1. Make out the following bill:—
   81 yds. silk at 3s. 9d. per yd.
   225 yds. flannel at 1s. 7d. per yd.
   108 yds. serge at 1s. 8d. per yd.
   45 unbrellas at 11s. 6d. each.
   51 prs. of silk stockings at 10s. 7d. per pr.
   360 prs. of gloves at 1s. 2½d. per pr.
2. Find the cost of 7551 articles at £3 15s. 2¼d. each.
3. 37 cwt. 2 qrs. 13 lbs. at £4 14s. 6d. per cwt.
4. What is the value of 10,060 articles at one shilling and eleven-pence halfpenny each?

GRAMMAR.

1. Parse all the nouns, verbs, and adjectives in the following:—
   "It ceased, the melancholy sound,
   And silence sunk on all around;
   The air was sad, but sadder still
   It fell on Marmion's ear,
   It plained as if disgrace and ill,
   And shameful death, were near."—*Scott.*

   Point out and parse all the adjectives and adverbs in the above.
2. Give two examples of verbs in the imperative, and two of verbs in the subjunctive mood.
3. What adjectives are compared by adding *er* and *est* to the positive?

GEOGRAPHY.

ANSWER TWO QUESTIONS.

1. Name in order the river-mouths, bays, headlands, and principal seaports between the Firth of Forth and the mouth of the Thames. Describe briefly the character of each seaport.
2. What differences of climate are there between the east and the west sides of Great Britain? Give reasons for these differences.
3. Say what you know about the physical features and industrial pursuits of Devonshire, Cumberland, and Aberdeenshire.

If you can, draw a map to illustrate *one* answer, and insert the lines of latitude and longitude.

PUPIL TEACHERS AT END OF FIRST YEAR.

THREE HOURS AND A HALF ALLOWED.

ARITHMETIC.

MALES.

1. Reduce, add together, and state total of the following five quantities:—£$9\frac{5}{8}$, £$16\frac{3}{8}$, £$21\frac{1}{3}$, £5·75, £14·125.
2. What is the cost of $5\frac{7}{8}$ oz. of gold when $1\frac{2}{5}$ oz. are worth £$6\frac{1}{5}$?
3. Reduce $\frac{3}{14}$ of a guinea to the decimal of £.
4. By what decimal is $\frac{19}{33}$ greater, or less, than the product of ·00756122 × 77·482?
5. Divide the sum of £4 5s. 8d. between two people, so that one may have three times as much as the other.

FEMALES.

1. If a gentleman's income be £500 a year, and he spends 19s. 4d. a day, how much will he have saved at the year's end?
2. If I pay 10 shillings for the carriage of 2 tons for 6 miles, what must I pay for the carriage of 12 tons 17 cwt. for 17 miles?
3. A gentleman bought a wedge of gold, which weighed 14 lbs. 3 ozs. 8 dwt., for the sum of £514 4s.; at what rate did he pay for it per ounce?
4. How many allowances of 5 oz. 7 drs. each may be cut from seven cheeses, each weighing 1 cwt. 2 qrs. 5 lbs.?

GRAMMAR.

1. Parse each word in the following—
   (*a*) Yours faithfully.
   (*b*) Sweet lord, you play me false.
   (*c*) Far from the madding crowd's ignoble strife.
2. What is meant by interrogative adverbs? Give examples.
3. The suffix *ly* forms certain words into adverbs, others into adjectives: give examples.

GEOGRAPHY.

1. Draw a full map of France. Insert the lines of latitude and longitude.
2. Trace minutely the course of the Rhine, mentioning in order its tributaries and the towns on its banks, and describing the character of the country through which it flows.

HISTORY.

1. Write down a list of our sovereigns from Alfred to Edgar, with dates.
2. What sovereigns reigned between Henry I. and Richard II.? Give their dates.
3. Mention the names and dates of sovereigns who sat on the throne between 1660 and 1760.

PUPIL TEACHERS AT END OF SECOND YEAR.

THREE HOURS AND A HALF ALLOWED.

ARITHMETIC.

MALES.

1. Sixty-nine rifle competitors fired 30 shots apiece, and each man made an average of $1\frac{1}{3}$ centres. What was the percentage of centres to shots?
2. Find the interest on £527 11s. 9d. for $7\frac{1}{2}$ years at $3\frac{1}{10}$ per cent. per annum.
3. By selling eggs at 3 a penny I gain 5 per cent. What do I gain or lose per cent. by selling them at the rate of 25 for 6d.?
4. Divide £723 15s. among *A*, *B*, *C*, *D*, so that *A*, *B*, and *C* shall receive equal shares, and *D* $\frac{2}{3}$ of one of their shares.
5. Bought 236 yds. of lace at 7s. $10\frac{1}{2}$d. per yd.; sold $\frac{1}{4}$ of it at 10s. 6d. per yd., $\frac{1}{3}$ at 8s. 6d. per yd., and the remainder at 7s. per yd. What was the gain or loss per cent. on the whole outlay!

FEMALES.

1. Divide $9\frac{1}{6}$ by $\frac{1}{2}$ of 7; and $5205\frac{1}{5}$ by $\frac{4}{5}$ of 91.
2. If $25\frac{2}{7}$s. will pay for the carriage of 1 cwt. for $145\frac{1}{4}$ miles, how far may $6\frac{1}{2}$ cwt. be carried for the same money?
3. If £50 in 5 months gain £$2\frac{37}{144}$, what time will £$13\frac{1}{3}$ require to gain £$1\frac{1}{12}$?
4. Reduce 9 oz. $2\frac{2}{7}$ drs. to the fraction of a pound avoirdupois.

GRAMMAR.

1. Point out and parse all the pronouns and prepositions in the following:—

   And never yet, since high in Paradise
   O'er the four rivers the first roses blew,
   Came purer pleasure into mortal kind
   Than lived thro' her who in that perilous hour
   Put hand to hand beneath her husband's heart
   And felt him *hers* again.

   (*a*) What are the analogous forms to 'hers,' derived from *thou, you, they?* and how does the use of these forms (hers, etc., etc.) differ from that of *her, thy, your, their?*
   (*b*) Point out the principal sentence in the above, and analyse it.
2. Explain the terms—Syntax, subject, predicate, complex sentence, subordinate sentence.

GEOGRAPHY.

1. Draw a full map of our possessions in South Africa. Insert the lines of latitude and longitude, and explain how they are useful in drawing a map.
2. Give notes of a lesson on "The Productions and Trade of Hindostan."

SECOND PAPER.

ONE HOUR ALLOWED FOR FEMALES, TWO HOURS AND A HALF ALLOWED FOR MALES.

HISTORY.

1. How came there to be Roman legions in Britain? When and why did they leave it?
2. What was Danegeld? Tell its object and effect.
3. In what way did Edward III. and Henry IV. respectively obtain the throne?

EUCLID.

(All generally understood abbreviations for words may be used.)

1. The angles at the base of an isosceles triangle are equal to each other, and if the equal sides be produced, the angles on the other side of the base shall be equal.
2. To bisect a given finite straight line—that is, to divide it into two equal parts.
3. Describe a circle which shall pass through two given points, and have its centre in a given straight line. Is this always possible?

PUPIL TEACHERS AT END OF THIRD AND FOURTH YEAR.

THREE HOURS AND A HALF ALLOWED.

ARITHMETIC.

MALES.

1. A boy earns 18s. a week, spends only 14s. 6d., gives his mother $\frac{3}{7}$ of his savings to put by for him, and the remainder for her own use. What percentage of his income does he put by; and what percentage goes to his mother for her own use?
2. If £33 6s. 8d produce £5 8s. $6\frac{2}{3}$d. in $1\frac{1}{4}$ year, what sum may be expected from £520 17s. 11d. dealt with in the same way for $2\frac{1}{4}$ years, and what is the rate per cent. per annum of profit?
3. I bought 15 gallons of a liqueur for £27, and retailed it at 5s. a pint; what was the gain per cent., and what on the whole?
4. What income will be derived from shares paying 7 per cent. purchased (at par) with the sum accruing from the sale of £629 14s 5d. of stock at $92\frac{3}{8}$ per cent?
5. *A* has 50 chests of tea, which cost £22 10s. per chest; he barters with *B*, at an estimated profit of 20 per cent., for a quantity of mahogany at £30 a ton. The mahogany depreciating in value during storage, *A* loses on it 1s. 6d. per cwt. What is his net gain by the transaction?

FEMALES.

1. If ·375 of a ship be worth £3740: what is the worth of the whole?
2. From 270·2 take 76·4075. and divide 721·17562 by 2·257432.
3. Reduce 2 gal. 1 qt. beer to the dec. of a barrel, and find the value of ·046875 of a lb. avoirdupois.
4. Divide 3·5 by ·24, and multiply 4·72 by 3·6.

GRAMMAR.

1. "It is great sin to swear unto a sin,
   But greater sin to keep a sinful oath.
   Who can be bound by any solemn vow

To do a murderous deed, to rob a man,
To reave the orphan of his patrimony,
And have no other reason for this wrong
But that he was bound by a solemn oath?
—*King Henry VI.*

(*a*) Parse all the words in the last line.

(*b*) Analyse the two sentences contained in the last two lines, supplying any words that are required to make the analysis complete.

N.B. Take care to point out the character of each sentence.

(*c*) When is the infinitive mood used without being preceded by the word *to?* Give examples of this from the above passage, and mention others that occur to you.

2. Write the subject-matter of a lesson on either of the following:—Mood, Tense.

3. Give the Latin prepositions that mean under, with, across, out of.

GEOGRAPHY.

1. Draw a full map of our possessions in South Africa. Insert the lines of latitude and longitude, and explain how they are useful in drawing a map.

2. Give notes of a lesson on "The Caspian Sea."

SECOND PAPER.

ONE HOUR ALLOWED FOR FEMALES, TWO HOURS AND A-HALF FOR MALES.

HISTORY.

1. Give the names and dates of sovereigns of the House of Tudor, and show the relationship between them.

2. Do you consider our Stuart sovereigns to have been fortunate or unfortunate? Give your reasons.

3. During the reign of George III. a large foreign possession was lost to England. Explain the event and give some particulars.

EUCLID.

(All generally understood abbreviations for words may be used.)

1. If two triangles have two sides of the one equal to two sides of the other, each to each, but the base of one greater than the base of the other; the angle contained by the sides of the one which has the greater base shall be greater than the angle contained by the sides, equal to them, of the other.

2. The opposite sides and angles of a parallelogram are equal to one another and the diameter bisects it, that is, divides it into two equal parts.

3. If in the sides of a square, at equal distances from the four angles, four points be taken, one in each side, the figure formed by joining them will also form a square.

ALGEBRA.

1. Explain the terms *coefficient, expression, factor, index, greatest common measure, identical equation.*

Find the coefficiency of x^3 in the product of ax^4-bx^3+cx-d and px^2-qx+r.

2. Reduce $\frac{x^2-5x+6}{x^2+2x-8}$ and $\frac{6+x-x^2}{8+6x+x^2}$ to lowest terms, and then add them together.

3. Solve the equations:—

$$(1)\quad \tfrac{1}{7}(x-\tfrac{1}{2})-\tfrac{1}{5}(\tfrac{x}{3}-x)=1\tfrac{13}{30}.$$

$$(2)\quad \frac{7x+1}{x-1}=\tfrac{35}{9}\left(\frac{x+4}{x+2}\right)+\tfrac{28}{9}.$$

PUPIL TEACHERS AT END OF FOURTH AND FIFTH YEAR.

THREE HOURS AND A HALF ALLOWED.

ARITHMETIC.

MALES.

1. Sold goods for £225 10s. 0d. with a gain of $12\frac{3}{4}$ per cent., how much per cent. would have been gained or lost by selling them for £187 10s. 0d.?

2. What sum must I have invested (neglecting fractions of a penny) in $3\frac{1}{2}$ per cent. stock at $89\frac{1}{3}$, in order that, spending daily 15s. 6d. out of my income, I may lay by in a year (365 days) £123.55?

3. If the loss per cent. in selling 50 copies of a book at 7s. 6d. per copy, 80 at 4s., and the remainder of the edition for £12, was $35\frac{15}{29}$; what was the cost of publishing the book?

4. By how much greater or less than £25 5s. 6d. will be the interest on £321·76875 for 2 years 5 months at $3\frac{1}{4}$ per cent. per annum?

5. What is the length of the four equal sides of a rectangular park containing 98759·3476 square yards;

or, what fraction of a mile is the side of a similarly shaped park containing ·694 square mile?

FEMALES.

1. If I buy a yard of cloth for 14s. 6d. and sell it for 16s. 9d., what do I gain per cent?

2. At what rate per cent. will £956 amount to £1314 10s. in $7\frac{1}{2}$ years at simple interest?

3. A young man received £210, which was $\frac{2}{5}$ of his elder brother's portion; now three times the elder brother's portion was half of the father's estate, how much was the estate worth?

4. Find the interest of £985 2s. 7d. for 5 years 127 days, at $5\frac{1}{2}$ per cent. per annum.

GRAMMAR.

1. "*Let it be remembered, that to write, however* ably, merely to convince *those* who are already *convinced, displays but* the courage of a boaster."—COLERIDGE. *The Friend.*

(*a*) Analyse the above passage.

(*b*) Parse fully all the words in italics.

(*c*) What is meant by a finite verb, and what is the nature of the infinitive mood? Illustrate from the above passage.

2. In what respects is the English alphabet incomplete?

GEOGRAPHY.

1. Give notes of a lesson to an advanced class on "The Lines of Latitude and Longitude, as shown on a globe, their meaning and their usefulness.

Draw a map of North America, with the lines inserted, and refer to this map at each point of the lesson.

2. What is a Coral Island? Where are such islands found?

SECOND PAPER.

ONE HOUR ALLOWED FOR FEMALES, TWO HOURS AND A HALF ALLOWED FOR MALES.

HISTORY.

1. What English sovereigns have died a violent death? Distinguish between accident and design, and give dates of the events.

2. When and how did the conquest of Ireland begin, and under what circumstances was the legislative union with that country effected?

3. Mention what you consider to be the most important events which have happened so far in the reign of the Queen.

EUCLID.

(All generally understood abbreviations for words may be used.)

1. *ABCD* is a parallelogram; through *A* draw any line, and show that the distance of *C* from this line is equal to the sum or difference of the distance of *D* and *B*, according as the line passes without or within the parallelogram.

2. If a straight line be divided into any two parts, the square on the whole line is equal to the squares on the two parts, together with twice the rectangle contained by the parts.

3. To describe a square that shall be equal to a given rectilineal figure.

ALGEBRA.

1. Show that $3(y-x)(y+x)(5y^2-8xy)+5x^2)=(x-2y)^4-(2x-y)^4$.

2. Find a number such that, whether it be divided into two or into three equal parts, the continued products of the parts shall be the same.

3. Solve the equations:—

$$(1)\quad \begin{cases} 10x-11y+12=0. \\ 13x-14y+11\cdot7=0. \end{cases}$$

$$(2)\quad \frac{7x}{3}+\frac{3-x}{2x}=20\tfrac{2}{3}.$$

MENSURATION.

1. "The area of a triangle is half the product of the base and the altitude.' How would you prove this to a class of boys who have read the first book of Euclid?

2. An oblong grass plot 120 feet by 60 is to be levelled at £6 1s. per square chain, and a lawn tennis court 78 feet by 36 is to be turfed within it at 4d. per square yard. What will be the cost?

Practical Department.

LESSONS ON CHEMISTRY.

(*Coutinued from last month.*)

9. But in a true chemical compound the union is far more intimate, than in a mere mixture, and the most powerful microscope fails to reveal to the eye the ultimate molecules of the compound, still less the atoms of its elements. The minute constituents are held together by a force far greater than the attraction of a magnet. The moment the chemical force comes into play, the subdivision of the ingredients is carried on to a wonderful degree of fineness, far beyond the ken of the eye aided by the most perfect optical instrument. Sir William Thompson states that in any ordinary liquid or transparent or seemingly opaque solid, the mean distance between the centres of contiguous molecules is less than one hundred-millionth of a centimetre. (N. B. centimetre = ·394 inch.) These small atoms and molecules are combined in greater or less groups and held together by a most extraodinary force.

10. Thus a *Chemical Compound* may be known by the union of its materials in definite proportions by weight, these proportions being called the atomic or combining weights when reduced to their lowest terms and compound with the weight of hydrogen taken as unity. A total change of proporties, as density, color, solubility, crystalline form, chemical action on other bodies etc, also occurs and indicates chemical union. The evolution or the absorption of heat are frequent concomitants.

11. The results of chemical union or separation will generally be visible, yet we cannot depend on our senses alone to furnish evidence that the chemical force has been brought into play. We can only rely with certainty upon analysis of the compound. The chemical reactions and the definite composition are the only real tests. All other conditons may be accidental or may be absent. Thus in photography, a dried film of pure iodide of silver spread on glass may be exposed to light and still remain to all appearance unaltered for a length of time. We cannot distinguish by mere observation independently of experiment between the exposed and the unexposed surface. But as soon as the exposed film is washed with a dilute solution of pyro-gallic acid, or of sulphate of iron, the silver is reduced and blackened only at those places where the light has produced chemical change, and the amount of blackening will be precisely proportioned to the intensity of the luminous impression.

12. *Chemistry* prys into the individual molecules of which a body is made up ; enquires how many atoms the molecule possesses, and of what kind they are ; notes changes in the relation of these atoms to each other in the molecule ; and observes the changes which result in the breaking up of the original molecules, and the formation of fresh ones by the re-arrangement of their atoms. In thus investigating terrestrial matter it is found that all the various forms of matter that have been examined can be divided into two great classes—

1. Elementary Bodies, elements, or simple substances out of which the chemist has not been able to get two or more essentially different substances. The number of these elements at present admitted is about sixty-five. By calling them elements we only mean that chemists have hitherto been able to get only one kind of matter out of them. It is quite possible that some of them may turn out to be compounds, and that other new elements may be discovered. The spectrum analysis of light shows that many of these elements exist in the sun and in the fixed stars. The analysis of meteoric stones has failed to discover any new element not found on the earth.

II. Compound Bodies which contain two or more kinds of matter. Thus chalk can be made to yield these elements namely an invisible gas, oxygen—a black solid, carbon,—and a white shining metal, calcium. Sugar may be resolved into oxygen, and hydrogen gases, and solid carbon. Iron rust consists of iron united with oxygen gas.

13. The greater number of elements have been found in minute quantities and may be regarded as unimportant. The elements have been divided for convenience into two classes **Non-Metals** and **Metals**. The divison is a purely arbitrary one as it is not possible to draw an exact line of demarcation between these two groups. To the first class belong elements which are gaseous at the ordinary temperature—oxygen, hydrogen, nitrogen, chlorine, and fluorine—together with certain solid bodies—carbon, sulphur, phosphorus, iodine etc. Metals are such substances as gold, iron, silver and mercury. They are all solid, except mercury, at the ordinary temperature. Most of them are opaque, have the metallic luster, generally a high specific gravity, and conduct heat and electricity readily. But there are exceptions in both classes and it is merely a division for convenience. It is customary to use the first letter or letters as a contraction for the name of any element, and this is its *Chemical Symbol*, and chemical combination is expressed by uniting the symbols side by side.

NON-METALS.

NAME.	SYMBOL.	ATOMIC WEIGHT.		ATOMICITY.
Hydrogen	H.	1		Monads.
Chlorine	Cl.	35·5	35·37	
Bromine	Br.	80	79·75	
Iodine	I.	127	126.53	
Fluorine	F.	19		
Oxygen	O.	16	15·96	Dyad.
Sulphur	S.	32	31·98	" or Tetrad, or Hexad.
Selenium	Se.	78		" "
Tellurium	Te.	128		"
Nitrogen	N.	14	14·01	Triad, or Pentad.
Phosphorous	P.	31	30·96	" "
Arsenic	As.	75	74.9	" "
Boron	B.	11		
Carbon	C.	12	11·97	Tetrad.
Silicon	Si.	28		"

The first column contains the atomic weights that have been in use, and which will be used in all calculations in this book. The second gives the correct equivalents according to the latest researches.

METALS.

(ONLY THE MORE IMPORTANT.)

NAME.	SYMBOL.	ATOMIC WEIGHT.	
Potassium	K.	39	I
Sodium	Na.	23	I
Silver	Ag.	108	I
Barium	Ba.	137	II
Calcium	Ca.	40	II
Magnesium	Mg.	24	II
Zimc	Zn.	65	II
Mercury	Hg.	200	II
Copper	Cu.	63	II
Manganese	Mn.	55	VI&c
Iron	Fo.	56	VI&c
Aluminium	Al.	27·5	IV
Lead	Pb.	207	IV

EXPERIMENTS.

1. Put some lumps of ice in a flask with a long bent tube fitted into the cork. Wrap some cloth or blotting paper round the tube and keep it moist by dropping water upon it. Place the end of the tube in an empty flask, partially submerged in cold water. If the spirit lamp be now placed beneath the ice, it will be changed partly

into water and partly into steam, which will again condense into water and collect in the lower flask. A cubic inch of water will yield about a cubic foot of steam.

2. Put a small quantity of iodine in the bottom of a flask. Over the neck of the flask hold a large glass jar or a clear bottle. Place the lamp under the flask, and the iodine will not melt, but will at once be converted into a beautiful rose-colored vapor, which will fill the upper jar, and may be poured into another vessel. If the lamp be removed, the iodine will again condense and the minute crystals will collect in the neck of the flask.

(To be Continued.)

CLASS DRILL IN ARITHMETIC.

The Pennsylvania State Teachers' Association at its last meeting did a large amount of genuine *practical* work. One of the most interesting exercises was a drill in elementary arithmetic, conducted with a view of illustrating the method used in the Pittsburgh schools. The following is taken from the *Pennsylvania School Journal:*

Prof. Luckey responded, instancing to the results of examinations for West Point, in which the candidates were almost universally found defective in elementary arithmetic—making frequent mistakes in the fundamental rules. These reports had directed his special attention to the matter, and on applying the test, he found that the pupils of the Pittsburgh schools were not exact, even in addition. They at once set about remedying the evil, and he thought what was about to be presented would be evidence of success. The class of fifteen children on the platform are from the Hancock Free School—not picked children, nor those specially favored by circumstances, but rather the reverse. What they do now, all the children in Pittsburgh schools will be doing in a year—they do not do so well yet, as the plan is new, and Prof. Dolan's school has had it in operation longer than the others. There is no reason why the "lightning calculator" should be phenomenal; any pupil of average ability, like those before you, with proper training, will do the same kind of work—there is nothing phenomenal about it. The best proof of that will now be given.

Miss Nannie Shannon, of Prof. Dolan's Hancock school, on Webster avenue, Pittsburgh, then gave an exercise with a class of fifteen pupils, averaging ten and a half years of age, names as follows:—Louis Solomon, Josie Dillon, Joe Cavenaugh, Mamie Dillon, Isaac Sciball, Mollie Savage, John O'Malley, Morris Quinlan, Pat O'Malley, John Martin, Charlie Donaldson, Eva Dolan, Maggie Eagan, James Curren, Alice Little. They were numbered from one to fifteen, and the teacher proceeded to write questions upon the board, in addition, subtraction, multiplication, and division, all of which where strictly timed. The example in addition given on the margin, was allotted thirty seconds, and long before the teacher called "time," several were on their feet, and all had finished at the word, with correct results. Disagreement about the answer was rare, and the time given was nearly always sufficient for all, showing that the plan had been well digested and carefully applied by the teachers. The figures were changed on requests from the audience, questions were sent up to the stage and solved with the same readiness, and it was quite evident that it was fair, honest work, and no humbug, or "hocuspocus," as somebody suggested. The reader will better appreciate the facts of this exercise if he will have himself timed on the example given above, or on multiplying 631024 by 8697 in forty-three seconds, as these children did—some of them in less time—or on dividing 94853652 by 8294 in one minute, which seemed easy enough to them, but which some of the spectators found difficult enough to "give it up." The work of this class was uniformly good and sure, and the results surprising to all but those who had wrought them.

89123
45678
91234
56789
12345
67891
23456
78912
34567
89123
45678
634796

Mr. Gow complimented the class on their excellent and accurate work, and asked the teacher to tell us how she had got them to do it. He would like to know, too, how long it took to teach this as compared with the common method.

Prof. Luckey—It takes about half the time of the old method—less, if anything. We train them upon twenty-five columns of figures; and when they have mastered these, adding up and down, they can do any addition required, just as you have seen them.

Mr. Gow—You mean *forty*-five columns.

Prof. Luckey—I mean just what I said—*twenty*-five columns. If you will give me time, I will write them on the board here.*

1	2	P	3	4	P	5	6	P	7	8	9	P	10	11	12	P	13	14	15	16	P	17	18	19	20	P	21	22	23	24	25	P
1	1	1	1	3	1	1	3	1	1	3	5	1	1	3	5	1	1	3	5	7	1	1	3	5	7	1	1	2	4	6	8	1
1	2	2	3	3	2	4	4	2	5	5	5	1	6	6	6	2	7	7	7	7	2	8	8	8	8	2	9	9	9	9	9	2
1	2	1	3	3	3	4	4	3	5	5	5	3	6	6	6	3	7	7	7	7	3	8	8	8	8	3	9	9	9	9	9	3
1	2	2	3	3	4	4	4	4	5	5	5	4	6	6	6	4	7	7	7	7	4	8	8	8	8	4	9	9	9	9	9	4
1	2	1	3	3	1	4	4	1	5	5	5	1	6	6	6	5	7	7	7	7	5	8	8	8	8	5	9	9	9	9	9	5
1	2	2	3	3	2	4	4	2	5	5	5	2	6	6	6	6	7	7	7	7	6	8	8	8	8	6	9	9	9	9	9	6
1	2	1	3	3	3	4	4	3	5	5	5	3	6	6	6	1	7	7	7	7	1	8	8	8	8	1	9	9	9	9	9	1
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1	2	1	3	3	1	4	4	1	5	5	5	1	6	6	6	3	7	7	7	7	3	8	8	8	8	3	9	9	9	9	9	3
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1	2	1	3	3	3	4	4	3	5	5	5	3	6	6	6	5	7	7	7	7	5	8	8	8	8	5	9	9	9	9	9	5
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1	2	1	3	3	1	4	4	1	5	5	5	1	6	6	6	5	7	7	7	7	5	8	8	8	8	5	9	9	9	9	9	5
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1	2	1	3	3	3	4	4	3	5	5	5	3	6	6	6	1	7	7	7	7	1	8	8	8	8	1	9	9	9	9	9	1
1	2	2	3	3	4	4	4	4	5	5	5	4	6	6	6	2	7	7	7	7	2	8	8	8	8	2	9	9	9	9	9	2
1	2	1	3	3	1	4	4	1	5	5	5	1	6	6	6	3	7	7	7	7	3	8	8	8	8	3	9	9	9	9	9	3
1	2	2	3	3	2	4	4	2	5	5	5	2	6	6	6	4	7	7	7	7	4	8	8	8	8	4	9	9	9	9	9	4
1	2	1	3	3	3	4	4	3	5	5	5	3	6	6	6	5	7	7	7	7	5	8	8	8	8	5	9	9	9	9	9	5
1	2	2	3	3	4	4	4	4	5	5	5	4	6	6	6	6	7	7	7	7	6	8	8	8	8	6	9	9	9	9	9	6

*As there was quite a difference of opinion about the possibility of teaching addition with but twenty-five columns of figures, we give below the Pittsburgh system, kindly furnished at out request by Supt. Luckey. The columns marked "*P*" are only for practice, and are no part of the system. Pupils are required to add these columns both up and down, by which they get all the combinations.—*Reporter.*

Prof. S. F. Hoge said he would like to know where the *dull* pupils of the school were, or whether they were so fortunate as to have none. He thought there must have been some selection to get such a class. Besides, this was such strenuous nervous exertion, that in

mercy to the children he had been inclined some time ago to ask that they be allowed to stop.

Prof. J. V. Montgomery said he had seen this plan in operation in other Pittsburgh schools, where all the pupils did just as good work as we have seen, and with no indications of being unduly excited or tired.

Mr. Luckey—I don't think these children look particularly nervous, or very tired; but as they have had a long ride here, and an early breakfast, we will dismiss them now, unless somebody is not satisfied they can do what we say.

The children were dismissed amid hearty applause.

Dr. A. B. Miller said he was sorry so much time had been spent in repetition which could only prove what every observant person knew after the first ten minutes—that it was fair and honest work. This lightning drill was a grand success in itself, but he would like to know what was the effect of this intense activity upon the brain. Is not the unnatural excitement likely to prove hurtful?

Prof. Luckey—We have seen no injurious results whatever. The children like it, they do not get tired, and it keeps them wide awake, and does them good. Any of you can try it for yourselves, and see if it does any harm: we think not.

The discussion closed here, and we think at this point it is desirable to give Prof. Dolan's exposition of the plan, furnished by him to the Pittsburgh papers:

"The formal study of arithmetic should not be introduced till the child has gained a knowledge of number in the abstract from his every-day experience. This knowledge comes at about the age of eight years; and if a child commences arithmetic before such knowledge is secured, he combines figures instead of combining numbers, and thus he is wrong from the beginning. The combining of numbers develops the brain, and is a good mental drill. The combining of figures, if it developes the brain at all, is of little or no use as a mental exercise.

"As the fundamental rules—addition, subtraction, multiplication, and division—require but little reasoning power, they should be mastered before the power of reason develops, so that when the reasoning power does come, the child may be prepared to use it. This power comes so as to be profitably used in arithmetic, at about the age of ten years.

"To secure the best results in mastering the fundamental rules, a number of principles, running throughout the entire work, must be observed. The first of these relates to the element of time. The flow of nerve energy requires time; thought requires time. If this time is not allowed, the pupil will blunder; he cannot assimilate, and there will be little or no intellectual development. On the other hand, if too much time is allowed, the mind will wander. Time must be allowed for recuperation. Thought consumes the highest type of nerve force, and if the demand exceeds supply, thought stops. This alternation between supply and demand occurs between the naming of results in the fundamental rules of arithmetic. This brings in the element of vibration—of action and repose—which permeates the entire universe. The observance of this law of vibration, of sympathy, is a powerful auxiliary in concert teaching. In oral work, results should be given at regular intervals of time. In addition, one of these intervals should be allowed at the end of each column for writing the result. That the circle of nerve action may be complete, the result should not rest in the brain, but should be expressed orally or in writing. But, since writing results is much more difficult, as well as much more practical, the teacher should insist upon pupils writing results whenever practical.

"Both oral and silent work should be required. A child may be able to perform arithmetical operations, giving results orally, which he could not perform silently. When results are given orally, the motor energy required to express the results reacts upon the ideational tract, and assists ideation.

"Our pupils count in the second year of their course. They commence addition at the beginning of the third year. They add 2's; then 1's and 2's; then 3's; then 1's, 2's and 3's, and so on—completing the addition in two years. We teach addition, multiplication, short division, subtraction and long division in two years, and in the order here named. We have these rules overlap, so that we complete them all in the above time. Although addition is commenced seventeen months before long division, they are both completed at the same time.

"Our time to add twelve numbers of ten figures each, is one minute. This is the greatest rapidity that we permit in oral addition. In silent addition some of our pupils add three terms per second, and some even four; but they are all required to add two terms per second.

"In multiplication, we use the table in the margin. We have no recitations on the multiplication table; pupils learn the table by applying it to their actual school work. Our time, when the multiplier is greater than one and less than ten, is one second for each product figure. We multiply 1's and 2's by 3's as soon as we can add 2's; 1's, 2's and 3's by 3's, as soon as we can add 3's and so on, keeping the multiplication close to the addition all the way through. In short division, we use the same table as that used in multiplication. We commence with two as a divisor, then three, then four, and so on through the digits. Our time, when the divisor is more than one and less than ten, is one second for each quotient figure—though some of our pupils find two quotient figures per second. In subtraction, our regular time is one difference figure per second; still some of our pupils find two per second."

0— 0
2— 2
2 2— 4
2 2 2— 6
2 2 2 2— 8
2 2 2 2 2—10
2 2 2 2 2 2—12
2 2 2 2 2 2 2—14
2 2 2 2 2 2 2 2—16
2 2 2 2 2 2 2 2 2—18

It may be added that essentially this method is fully presented in Beebe's *First Steps Among Figures.*

HINTS TO TEACHERS.

BY S. P. ROBINS, LL.D., SUPT. OF PROTESTANT SCHOOLS, MONTREAL.

General.

1. Remember that, inasmuch as you are left very much to the guidance of your own judgment in the management of your class, it is especially necessary to use all your observant and inventive faculties for securing the best possible result of your labor.

2. That best possible result is the thorough preparation of each of your own pupils to prosecute his studies and perform all other duties well hereafter. The first aim is not a high standard of attainment, but a good discipline of mind and manner, so far as it can be attained with each little pupil.

3. Because the habits of thought and action that are earliest formed are the most persistent and influential throughout life, and because the imitative faculties of a little child are especially active and his nature peculiarly impressible, yours is the most important work done in school. It is difficult work, but if well done, you deserve corresponding consideration and honor. If you do not get them now, yet, your heart and life being right in other respects, you will secure them hereafter.

4. As you are conducting, in common with other painstaking

and successful teachers, a great experiment in the management of half-day classes with very little children, carefully observe whatever in your manner, or in the ingenious devices to which you will be led, makes for your success, practice it diligently, and tell of it to others.

Discipline.

There is no need of reference here to the mode in which the successful teacher acquires ascendency over each of her pupils by strength and consistency of character, by a loving heart, a kind manner, and a clear and vigorous understanding. All these things are pre-supposed in the successful teacher. When, as in my presence less than twelve months ago, a teacher says to a class, "I will look at the slate of no child out of place," and then in less than a minute does so, it is not surprising that her class despise her authority, and make little or no progress. One who can promise so lightly, and forget so readily, is fit for no important trust; certainly, not for that of the teacher. But there are many things, little in themselves though important in their results in discipline, which are sometimes overlooked even by those who have all the essential elements of excellent teachers.

1. Consider well the disposition of a little child. He is active, but undisciplined. He longs to know, takes great delight in learning; he loves to do, takes great delight in putting his knowledge into practice. But then he has but little persistency and steadiness.

2. You must, therefore, when he is not at play, teach him constantly or keep him doing constantly, and this with rapid alternations from the employment of his mind to the employment of his body.

3. So you must never be without a definite plan of action that shall engage the attention of every child. A half-minute's embarrassment of the teacher in the presence of the class, will work ruin in its discipline for the time being, and a child with nothing definite to do at any time during the school session becomes forthwith a centre of disturbance.

4. You must not put too prolonged a strain on the feeble power of attention in pupils of preparatory grade. Let your work be varied, and your lessons short and lively. Let the teachers who will follow you in the school course have most of the trouble involved in securing long-continued and concentrated attention.

5. Frequent change of rooms will much facilitate your work. In some schools visited there is not nearly enough of this. Your class should occupy two rooms during parts of every hour. This may compel you to change in the middle of a lesson, but you can so choose the lessons that the interruption will not be harmful.

6. Much aid to discipline is afforded by the drill of changing rooms, by simple calisthenic exercises and by exercise songs. But this aid is only secured by the enforcement of prompt and exact obedience.

7. Hence, the lightest tap of the bell should be followed by immediate and intense silence, not, however, permitted to continue long.

8. Hence, also, the first word of each command must be so chosen and given as to suggest invariably what is to follow; the next and finishing word of the command must be the signal for the prompt, universal, and, therefore, simultaneous execution of the command.

9. Hence, also, no second command should be given until the first has been universally and precisely obeyed.

10. Finally, the effect of each command must be minutely considered beforehand. For example, in a series of commands those first given should be those that can be executed noiselessly, the whole series being terminated by that one which necessarily involved disturbance.

Teaching.

1. You must yourself be accurate. The distinction between the well educated and the improperly educated, is just here, that the one is, and the other is not, automatically and minutely correct in recollection, in mode of thought, in manner of expression. Do not teach anything that must be subsequently unlearned.

2. With little children, especially at the outset, much attention must be given to them individually. This, however, in many instances, can be done so as to interest others, not directly addressed, who may be appealed to give the information that their companion requires.

3 The effect of every collective lesson is greatly increased when every child attends to the whole lesson. But this attention can be secured only by making each child feel that in all you say you have reference to him.

4. Hence, recitations and other exercises must not be wholly, nor even principally, simultaneous. No more convincing evidence of inexperience on the part of a teacher is needed than the general inability of a class to repeat individually, what in concert, or rather following the lead of one or two, they can in sing-song style deliver simultameously.

5. In questioning a class, you should not give it to be understood whether you intend to have the answer from the whole class or from any particular pupil until after your question has been asked and a moment's pause for reflection and recollection has been allowed. After the pause, you may say, "John Brown," or "any one," and then expect an instant answer. Thus you prevent one or two higher pupils suggesting the answer to all the rest of the class, and you secure the attention of each to the work in hand.

6. Take care that each child gets a fair share of questioning. Sometimes the teacher has a few names that somehow spring first to the tongue, and their owners get the lion's share of attention. When the teacher is conscious of this, let her make sure of each child occasionally by some such device as the following: Let the whole class stand, and as questions are answered by individuals, let them sit. Thus proceed until every child is seated.

7. Holding up the hand to indicate the wish to reply to a question is open to great abuse. Forward children answer everything. Timid or indifferent children answer nothing. It is a good rule that the hand shall not be held up except when another pupil has made a mistake or when the teacher, in asking a question that she thinks a little too hard for the class generally, gives special permission to raise it.

8. Rising from the seat, running after the teacher, thrusting the hand into the teacher's face, snapping the fingers, are highly improper acts, instances of each of which I have seen as importunate efforts to attract the teacher's attention. At times the teacher, by standing so that she cannot see the whole class, is the direct cause of such rudeness.

9. It is impossible to carry on work with the active co-operation of the teacher in two classes at once. Having given one class an exercise on the slates, or one of some other kind, that has been properly explained, that is within their power, and the result of which can be subsequently examined by yourself, bend your undivided attention on the other class.

10. In the examination of slate work, it is, as a rule, better that children bring it to the teacher, than that the teacher go to examine it. Hence, in every room pupils should be taught how, without marking time, or marching noisily, to move in single file before the teacher, showing work as they pass slowly, and then to return in order to their places, having completed the circuit of the room.

11. Home work is not needed in preparatory classes. It will much conduce to good order, therefore, if books, slates and pencils be always left in school under the care of the teacher.

12. The Preparatory Limit Table should be interpreted rather as a maximum than as a minimum.

Reading.

1. Use cards frequently for individual as well as for simultaneous reading.

2. Do not confine yourself to the set order of words. Pick out words here and there; read backward as well as forward.

3. I had supposed the teaching of reading by spelling thus, "emm" "ee" *me*, "ee" "double-gee" *egg*, to be obsolete; really, I find it only obsolescent. If a word be analyzed at all, *for purposes of reading*, it should be by the powers and not by the names of the letters.

ARITHMETIC.

1. If you have not an abacus that stands on feet, ask for one.
2. Use the abacus yourself, but let the children use it constantly.
3. Do not aim to go beyond the limit, 20.
4. Let every kind of relation among numbers be taken with each successive number; *i.e.*, do not teach addition first, and then subtraction, multiplication and division in succession, but teach all these operations, as mentally performed, simultaneously. Thus, that three and three are six, that three taken from six leaves three, that twice three are six, that three is the half of six, and that three is contained in six twice, are but different ways of regarding the same fact.

COMMON THINGS—OBJECT LESSONS—STORIES—SINGING.

1. See that you have, use yourself and set the children to use scales and weights, a two-foot rule, a clock card, and a compass.
2. Object lessons must be very simple, but they ought to be, none the less on that account, carefully prepared. It is a painful thing to see a teacher standing before a class puzzled to know what to do or what to say next.
3. Similarly, a story should be prepared beforehand. Great interest will be added if the teacher simply illustrate her story by drawing on the black-board as it proceeds.
4. In questioning children in all subjects, the aim should be to get connected answers of some length, but this can only be very slowly accomplished.
5. Teach children to sing distinctly, but not too noisily. The musical effect of a perpetual bawl is even worse than that of a perpetual whisper. It is no harm to have an occasional *ff* passage, but then let us also occasionally have *pp*.

MISCELLANEOUS.

1. Stand so that you can see all the children of the class, and so that each one of them can see, when necessary, what you do and how you do it. Sometimes it is well to overlook children from behind.
2. Be not noisy. Speak distinctly and quietly, so that children will listen to hear you; do not shout, so that they must hear you whether they will or no. Even if a busy hour of work (pleasant to hear) fill the room, do not raise your voice too much; call attention by a light stroke of the bell before you speak, then speak in the midst of a profound silence. Pointers and rulers were not made for banging desks with. Teachers' feet have other purposes than stamping on the floor.
3. Be not fussy. Self-possession, that quietly takes note of all surroundings, and that adjusts itself unruffled and without effort to them all, is the secret of easy government, as it is also the last refinement of the perfect gentleman.
4. Look out for short-sighted children, and for children who are hard of hearing. These physical imperfections are often unknown to the children themselves, and long escape the notice of parents and teachers. Unfortunately, not only do they given an appearance of stupidity to children that are really bright, but they most seriously retard progress unless compensated by the considerate arrangements of the teacher. Let as many exercises as possible cause the children to lift the eyes up from books to maps, pictures, objects at a distance and work done on the black-board, so that the tendency to shortsightedness may be, so far as possible, checked.
5. Embrace eagerly any opportunity that may be afforded you of visiting the classes of other preparatory teachers. I have seen some excellent work done in some of them, and in almost all the work is good. There is not a single class in which I have not seen at least one thing done so well that I could wish all other teachers of the same grade had an opportunity to see it.

SELECTIONS FOR MEMORIZING.

FIRST BOOK CLASSES.

1.

Only a drop in the bucket,
  But every drop will tell;
The bucket soon would be empty,
  Without a drop in the well.

Only a poor, little penny,—
  It was all I had to give;
But as pennies make the dollars,
  It may help some cause to live.

God loveth the cheerful giver,
  Though the gift be poor and small;
What does He think of His children,
  When they never give at all?

2.

Dare to be honest, good, and sincere,
Dare to please God, and you never need fear.

Dare to be brave in the cause of the right,
Dare with the enemy ever to fight.

Dare to be loving and patient each day,
Dare speak the truth, whatever you say.

Dare to be gentle and orderly too,
Dare shun the evil, whatever you do.

Dare to speak kindly, and ever be true,
Dare to do right, and you'll find your way through.

3.

Be good, my friend, and let who will be clever;
  Do noble things, not *dream* them all day long,
And so make life, death, and that *vast forever*,
  One grand, sweet song.

SECOND BOOK CLASSES.

1.

THE BIBLE.

Thou truest friend man ever knew,
  Thy constancy I've tried;
When all were false, I found thee true,
  My counsellor and guide.
The mines of earth no treasures give
  That could this volume buy;
In teaching me the way to live,
  It taught me how to die.—*George P. Morris.*

2.

He prayeth well who loveth well
  Both man and bird and beast;
He prayeth best who loveth best
  All things, both great and small;
For the dear God who loveth us,
  He made and loveth all.—*Coleridge.*

3.

Beware the bowl! though rich and bright
Its rubies flash upon the sight,
An adder coils its depths beneath,
Whose lure is woe, whose sting is death.
—*Alfred B Street.*

4.

We live in deeds, not years—in thoughts, not breaths—
In feelings, not in figures on a dial;—
We should count time by heart-throbs. He most lives,
Who thinks most—feels the noblest—acts the best.—*Bailey.*

THRID BOOK CLASSES

1.

God moves in a mysterious way,
  His wonders to perform;
He plants His footsteps in the sea,
  And rides upon the storm.

Deep in unfathomable mines
  Of never-failing skill,
He treasures up His bright designs,
  And works His sovereign will.

Ye fearful saints, fresh courage take;
  The clouds ye so much dread
Are big with mercy, and shall break
  In blessings on your head.

Judge not the Lord by feeble sense,
  But trust Him for his grace;
Behind a frowning Providence
  He hides a smiling face.

His purposes will ripen fast,
Unfolding every hour;
The bud may have a bitter taste,
But sweet will be the flower.

Blind unbelief is sure to err,
And scan His work in vain;
God His is own interpreter,
And He will make it plain.—*Cowper.*

2.

Press on! surmount the rocky steeps;
Climb boldly o'er the torrent's arch;
He fails alone who feebly creeps,
He wins who dares the hero's march.
Be thou a hero! let thy might
Tramp on eternal snows its way;
And through the ebon walls of night,
Hew down a passage unto day.

FOURTH BOOK CLASSES.

1.

Who is thy neighbor? He whom thou
Hast power to aid or bless;
Whose aching head or burning brow
Thy soothing hand may press.

Thy neighbor is the fainting poor,
Whose eye with want is dim;
Oh, enter then his humble door
With aid and peace for him.

Thy neighbor? Pass no mourner by;
Perhaps thou canst redeem
A breaking heart from misery;—
Go share thy lot with him.

2.

Work! and pure slumbers shall wait on thy pillow;
Work! thou shalt ride over care's coming billow;
Lie not down wearied 'neath woe's weeping willow,
Work with a stout heart and resolute will!
Work for some good, be it ever so slowly;
Work for some hope, be it ever so lowly;
Work! for all labor is noble and holy!—*Mrs. Osgood.*

3.

In the world's broad field of battle,
In the bivouac of Life,
Be not like dumb, driven cattle!
Be a hero in the strife!

Trust no Future, howe'er pleasant!
Let the dead Past bury its dead!
Act,—act in the living Present!
Heart within, and God o'erhead!

Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us
Foot-prints on the sands of time;—

Foot-prints that perhaps another,
Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
Seeking, shall take heart again.

Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait.—*Longfellow.*

FIFTH BOOK CLASSES.

1.

The glories of our birth and state
Are shadows, not substantial things;
There is no armour against fate,
Death lays his icy hands on kings:
Sceptre and crown
Must tumble down,
And in the dust be equal made
With the poor, crooked scythe and spade.—*James Shirley.*

2.

Walk with thy fellow-creatures: note the hush
And whisperings amongst them. Not a sprig,
Or leaf, but hath his morning hymns; each bush
And oak doth know I AM.—Canst thou not sing?
O leave thy cares and follies! go this way
And thou art sure to prosper all the day.
Serve God before the world; let Him not go
Until thou hast a blessing; then resign
The whole unto Him, and remember who
Prevailed by wrestling ere the sun did shine;
Pour oil upon the stones, weep for thy sin,
Then journey on, and have an eye to heaven.—*Henry Vaughan.*

3.

It is not growing, like a tree,
In bulk doth make man better be;
Or standing long, an oak three hundred year,
To fall a log at last, dry, bald, and sere,
A lily of a day
Is fairer far in May,
Although it fall and die that night;
It was the plant and flower of light.
In small proportions we just beauties see,
And in short measures life may perfect be.—*Ben Jonson.*

4.

So live, that when thy summons comes to join
The innumerable caravan, that moves
To the pale realms of shade, where each shall take
His chamber in the silent halls of death,
Thou go not, like the quarry-slave at night,
Scourged to his dungeon; but sustained and soothed
By an unfaltering trust, approach thy grave
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams.
From "Thanatopsis," by William Cullen Bryant.

Notes and News.

ONTARIO.

At the entrance examination to the Fergus high school 37 candidates presented themselves, 9 of which passed and one was recommended.

In St. Thomas all the old staff in Public Schools are continued, and the following new ones for the new schools just erected are engaged:—Miss Augusta Flack, Miss Christina Patterson, Miss Matilda Bruntz, Miss Edith Parlie, Miss Etoille Comfort.

In the Dundas Public Schools the places occupied by Misses Regan, Lyons, and McGorman, as teachers are now held respectively by Mr. A. S. Brown, Miss Knowles, (late of Brantford) and Miss Clark. The changes came into effect on the 1st inst. The number of pupils in the High School continues to increase. A Literary and Scientific Society in connection with the Schools possesses a Reference Library and Museum, and issues a paper called the "Dundas High School Journal."

The Seaforth High School begins its fourth year under favourable auspices. One hundred students and the upper classes crowded. Thirty-one Candidates passed the last entrance examination. The three masters of last year are retained at advanced salaries, $1200, $700 and $600 respectively.

No change in the Staff of Teachers in the Whitby Schools. Mr. Ed. S. Shrapnel, A.C.A., has been engaged by the Board of Education to teach drawing.

Only one change in the staff of the Morrisburg Model School. Miss Herbick being succeeded by Mr. Frank Lyle. In the Iroquois Public School Miss Mills is attending Normal School, is succeeded by Miss Jennie Elliot, and Mr. A. A. Whitaker by Mr. Wm. Johnston. In Chestervlle, Mr. C. B. Rae by Mr. Andrew Hamilton, Mr. J. P. Bogart by Mr. Miles Edgerton. The staff of the West Winchester P. S. have been re-engaged.

Mr. Neil Robertson fourth year Student of the Toronto University, has been appointed Classical Master of the Perth Collegiate Institute.

Mr. J. S. Jamieson, M. A., has been appointed English and Science Master of the Perth Collegiate Institute for the current year.

Mr. E. L. Curry, B. A., Head Master of Grimsby High School, has been re-engaged at his former salary of $1000. Mr. C. C. Kemp, undergraduate of Toronto University, has been appointed his assistant in place of Mr. T. J. Walrond, resigned.

At Kirby, Mr. Shaw who is a general favorite amongst the scholars was presented with a handsome present on the closing day of School.

The friends of Education in the Town of Durham, South Grey

are taking steps to have a High School established there, with the adjoining territory as a High School district.

Mr. McFaul has been appointed principal of the Ingersoll Model School at a salary of $850. We congratulate the people of Ingersoll on the appointment.

Presents from pupils to teachers are forbidden by the Hamilton Board of Education.

Mr. W. Atkin, from St. Thomas Central School, has been appointed to St. Catherine's Collegiate Institute, at $800.

Dr. S. H. Fee has been elected chairman of the Kingston School Board for 1882.

There are many vacancies in Schools throughout the County Kingston through the impossibility of securing teachers. If "permits" are not issued, in all probability the children will have to go uneducated.

Mr. Hamilton, assistant Classical Master in the Brantford Coll. Inst., has been replaced by Mr. Simon. Mr. McGill takes the position of Head Master in the Separate School. Miss Knowles, a very efficient Teacher, has left the Central for a good position in the Dundas Schools.

Mr. Harris was elected Chairman of the Guelph Separate School Board for the year, and Mr. Keough, Secretary.

Mr. J. G. Morris commenced as Teacher at Williamsburg under very favorable auspices. The attendance being over 40.

A growing movement for popularizing and diffusing elementary scientific and technical education in the British Isles is evidenced by the appointment of three learned scientists in England to proceed to America for the study of the system of technical education there.

The following School Board appointments have been made:—Harriston—Mr. R. Gilhuly, Chairman; Mr. S. Robertson, Secretary. Mount Forest—Mr. E. B. Boselly, Chairman; Mr. J. G. Smith, Secretary. Arthur Ville—Mr. R. Henderson, Chairman; Mr. J. Martin, Secretary. Listowel—Mr. Newman, Chairman; Mr. L. Bolton, Secretary. Clifford—Mr. K. M. Walton, Secretary. Drayton—Mr. W. H. Whalley, Secretary.

No single element of education seems to one, more important than the mother tongue. It seems to arouse and develop the intellectual nature of a child as nothing else can.—*Bayard Taylor.*

Mr. Passmore, B.A., of Brantford, has been appointed Head Master of Port Dover High School.

Mr. Dugald L. Campbell is appointed to Union Public School.

The appointment of Miss Bertha Philip to Dexter Public School gives general satisfaction.

Mr. James Smith from St. Thomas Collegiate Inst., to a School near St. Mary's. Salary, $450.

A struggle is going on in many counties between the qualified teachers and the local Inspectors on the question of "extensions" and "permits," which obtain so largely in the Eastern Counties. This "cheap-teacher" system has long been a sore point.

A school trustee, of Lindsay, Mr. Barron, after visiting the High School, described the building, at the Board meeting, as being utterly unfit for use by children, and that he would not allow a child of his own to go there. His remarks were entirely corroborated by Mr. Belcher. A resolution to call on the Town Council for $8000, to put the High School in a "proper healthy and habitable condition" was carried, after a weighty discussion, by the Board.

Mr. W. E. Sprague, of Cobourg, in retiring from teaching and joining the medical profession, was presented with first class medical works to the value of $40, by his late pupils.

The position of Dominion Naturalist, will in future be filled by Prof. Macoun, of Belleville.

At a recent meeting of the London Board of Education, the salary of Mr. W S. Milner, Classical Master of the High School, was raised from $800 to $900 per annum.

The Napanee High School is now held in the new premises, Roblin's Hall, the number in attendance at present being over 90. Although in the event of a large influx of pupils, fears may be entertained of the building supplying adequate accommodation, yet at present the interior of the building is well adapted for its purposes. Its surroundings are excellent, and render the location one of the finest in Ontario. In the Public Schools of the West Ward extensive and important alterations have been made, which will tend materially to increase the efficiency of the premises and the comfort of both teachers and pupils. The West Ward teaching staff consists of Mr. Jas. Bowerman, H. M., and Misses Mair, Walsh, Ballantine, Fraser, and Aylesworth. The East Ward staff consists of Mr. Black, and Misses Anderson, Deltor, and Phalen.

We are pleased to notice that Mr. Wismer's labours in Parkdale, have received tangible recognition in the shape of an increase of salary. Our readers will find an interesting article from Mr. Wismer, containing many valuable hints, in our correspondence column.

Notwithstanding very unfavorable weather a good number of visitors attended the public school examination of S. S. No. 9, Clarke. The examination was conducted by Mr. W. C. Allin, the teacher. A most satisfactory programme was gone through by the children, which clearly evidenced the great progress made under their present teacher, and the fact that he was re-engaged for the coming year being intimated by one of the Trustees, was received with evident gratification by all present.

The Rev. J. Tierman, in his report of the Separate School Board of London, complains very much of the irregularity which characterizes the attendance in their schools; which he cannot but attribute to the carelessness of parents and guardians. When it is considered that 55 pupils attended less than 20 days, and 334 less than 100, no wonder can be expressed at his complaint. Financially the report was most satisfactory, and measures are about being taken for the erection of new school premises at St. Peter's Cathedral, which will reflect credit on the city.

At a recent meeting of the Whitby Board of School Trustees, both members of the Board, and Mr. Brown, the Teacher of the Model School, expressed themselves very favorable to Gage's new series of School Books.

The cost of Teachers' salaries in the Brampton High School last year, amounted to $3,050.34, and for the Public Schools, $3,400, or together $6,450.34. This is half of the entire taxes levied in the town. It will be necessary at no distant date to increase this amount, as already additional class-room accommodation is required, 135 pupils having often to be squeezed into a room which is only adapted for 72.

Mr. W. J. Loudon, B.A., the gold medalist in mathematics, of 1880, has been added to the teaching staff of the mathematical department of Toronto University. Sarnia High School can boast of having on its staff the gold medalist in mathematics of 1881.

The examination and subsequent entertainment held in the school at Maplewood, were a great success. The addresses by Messrs. P. A. McKenzie and V. Stock, teachers, also of Geo. McKenzie and W. Stock, were listened to with marked attention, indicating as they did, the great success attending the efforts of both teachers and scholars. Mr. D. Burke, Mr. Transom, and Miss Bean conduced materially to the success of the entertainment.

Mr. Hubbard, of Thamesford, has succeeded Mr. F. A Lewis in the school at Richmond.

Miss Mary Wallace, one of the most successful teachers in the County of Peel, has recently been appointed to the principalship of the Streetsville Public School. This is an unusual compliment to so young a lady teacher, but we are satisfied Miss Wallace will successfully maintain her well earned reputation.

The Morrisburg High School opens this year with brilliant prospects. The attendance was larger in 1831 than in the previous year, while its success at the last Intermediate Examinations placed it among the best High Schools in Eastern Ontario. The present teachers, J. McGregor, M. A., Head Master, and W. H. Irvine, B. A., Assistant, seem determined that the School shall become one of the best in the Province.

At the last "Entrance" examination held by D. A. Maxwell, Esq., I. P. S. for South Essex, at Kingsville, there were 25 candidates, ten of whom were successful. Some of the teachers are endeavoring to have this examination substituted for the Promotion Examination from the 4th to 5th Class.

NOVA SCOTIA.

The annual meeting of the Association for promoting University Consolidation took place on the 29th of December, in Y. M. C. A. Hall, Halifax. I. W. Longley, Esq., A.M., Barrister, presided. The report presented showed that the Executive Committee had prepared a pamphlet containing in a succint form the chief arguments in favor of University Consolidation. Some 12000 copies of this pamphlet were in the way of being circulated. Dr. J. Gordon McGregor, Professor of Physics in Dalhousie College, moved a resolution in favor of Technical Education, which was adopted by the Association. The Association dined in the evening, with a large number of guests at the Halifax Hotel. Robert Sedgwick, Esq., A.M., Barrister at Law, acted as Chairman. Among the guests were Hon. A. G. Jones, Ex-Minister of Militia, Hon. J. S. D. Thompson, Attorney General, Hon. Judge James, Hon. J. F. Stairs, M.E.C., W. M. Blair, Esq., M.P.P., W. D. Harrington,

Esq., M.P.P., Dr. Allison, Supt. of Education. Stirring speeches in favor of the policy of Consolidation were delivered by several members of the Association, among others Messrs. Sedgwick (Chairman), Russel, Dr. McGregor, Prof. McDonald, and Longley, though the latter viewed the practical difficulties in the way as greater than did most of the others. Hon. Messrs. Jones and Stairs expressed their hearty sympathy with the movement. The Attorney General, Hon. Mr. Thompson, courteously expressed expressed dissent from several propositions advanced by other speakers. The Superintendent of Education briefly contrasted the forces of fact and sentiment arranged against each other in the struggle regarding Collegiate Education.

W. D. Harrington, Esq., M.P.P., for the City and County of Halifax, has introduced into the Legislature an act to secure better attendance at the Public Schools. It provides for compulsory attendance with a local option clause empowering the ratepayers of School Sections, and the Municipal Councils of incorporated Towns to bring its provisions into force in their respective localities.

MANITOBA.

The following is the staff of teachers in the Winnipeg Protestant Public Schools for the year commencing the first day in Febuary, viz.:—W. A. McIntyre, E A. Garratt, J. D. Hunt, A. Springer, E. A. Blakely, Miss Shore, Miss Wright, Miss McEwen, John Acheson, N. Hewitt, John Reid, F. Shore, F. F. Kerr, Miss Harvey, Miss McIlroy, Miss M. Eyres, Miss Roblin, Miss A. Eyres, Miss Hargrave, Miss McInnis. The promotions which the first eight of these have received are well deserved, Messrs. Hewitt, Shore, and Kerr having been doing excellent work at St. Paul's, Balmoral, and Sturgeon Creek respectively. Altogether, the staff is a very superior one, and great things are expected of it. As has been already stated, Mr. John B. Somerset, Inspector of Schools for the County of Lincoln, Ont., was unanimously elected to fill the position of Inspector of Schools for the city, rendered vacant by the resignation of Mr. J. H. Stewart. The position is one of great and growing importance, and it is felt by all who know Mr. Somerset that he is just the man for it.

Mr. John B. Ferguson was, at the last meeting of the Protestant section of the Board of Education, appointed Inspector of Schools for Springfield and parts adjacent—the position held till very recently by Rev. Alex. Matheson. The Superintendent of Education, in moving the resolution embracing the appointment, said that he desired in this way to mark his high sense of the value of the services rendered by Mr. Ferguson during the time he has held the position of principal teacher in the city schools.

At a recent meeting of the Board of Education, the following resolutions were, on motion of Rev. W. C. Pinkham, seconded by His Grace the Archbishop of St. Boniface, and Rev. Professor Cherrier respectively, unanimously adopted, viz.:—1. That in order to meet the demands upon the Board for the support of schools now in existence, as well as the large number that we believe will be opened during the current year, it is necessary that the grant on the credit of the school lands be increased to thirty-five thousand dollars for the present year, independent of the sum which may be voted by the Local Legislature. 2. That in consequence of the rapid rise in the value of land in the Province, the following gentlemen be a committee to enquire what school lands may seem to have reached a maximum value, and to report to this Board; and further, to prepare, for the consideration of this Board, an address to the Dominion Government, to be presented through the Local Government, relating to the sale of the lands, viz.: His Lordship, the chairman, convener, His Grace Archbishop Tache, the Superintendents of Education, Rev. Dr. Rice, Rev. Prof. Hart, and Messrs. Mulvey, Kittron. M.P.P., and Col. Kennedy.

REVIEWS.

MODERN SCHOOL GEOGRAPHY AND ATLAS.—PREPARED FOR THE USE OF SCHOOLS IN THE BRITISH PROVINCES.—AUTHORIZED BY THE MINISTER OF EDUCATION FOR ONTARIO.—TORONTO, CANADA PUBLISHING COMPANY, LIMITED.—It has not been our custom to review the books used in the schools of Ontario, lest criticism might be interpreted to mean an attack on the Department, or attributed to interested motives. The letter of our correspondent which appears in another column has led us, however, to begin a task which we promise to complete, viz.: a careful examination of some of the books at present on the list which evidently should have no place there. We sat down with the intention of reviewing the book under consideration, but space forbids our doing so in a single issue of the JOURNAL. We followed the generally recognized rule in teaching geography, and began with the study of our own country. If a Canadian Geography should be accurate in any portion it should certainly be in that part devoted to Canada. In this book there are five pages devoted to Canada and Ontario. This we hold to be *much too little*, but it is certainly enough of its kind. The Minister of Education very properly requires that the books used in Ontario shall be adapted to such a purpose. Why was the rule relaxed in this case? Why is a book that has nearly three hundred errors on the five pages relating to Canada and Ontario alone, authorized for use in the Schools of Ontario?

We have confined our attention almost entirely to the letter press in the present notice, but will give further attention in future numbers. The blunders in English alone to be found in it, will form a sufficient cause for the removal of this work from the list of authorized text-books which it now disgraces. We ask our readers to bear in mind that the following mistakes occur on *five pages*. We give them in the order in which they occur instead of classifying them, so that those who wish may compare with the book itself. If three hundred mistakes occur in five pages our readers can easily compute the number that will be found in the entire book.

In the list of provinces, page 13, no notice is taken of "Cape Breton" forming a part of Nova Scotia; "Keewatin" is termed a "District," (it should be spelled Keewaydin); and, "the North-West Territory was formerly called Hudson Bay Territory." These three errors occur in the opening paragraph on the Dominion of Canada. On the same page "Ontario" is classed as part of "an immense tract of level or gently undulating prairie land with only a few trees along the courses of the rivers, frequented by *vast herds of buffalo*."

Then follow such egregious blunders as: "the Lakes and River St. Lawrence," "The principal mountain ranges are the Rocky Mountains, and the Cascade Range in British Columbia," "In British Columbia the Peace River flowing into the Mackenzie River," "The Skeena or Simpson River, and the Columbia River passing into the United States," 'In the North-West Territory the Mackenzie formed by the junction of the Athabasca and Peace Rivers, flowing into the Arctic Ocean," "The Assinniboine, flowing into Lake Winnipeg and thence by the Nelson into Hudson Bay." Who ever heard before of the Cascade *Range* Mountains? Or of the Simpson River flowing into the United States? What a fine sight it must be to see the Assinniboine, Red, and Saskatchewan rivers sailing down the Nelson! How surprised the *voyageur*. familiar with the North-West from the 49th to the 70th parallel, will be to learn that his ideas concerning the Peace and Mackenzie rivers are all wrong! The Hoang-ho has altered its course—so has the Oxus—so have other notable rivers, but Nature or Art always loaned a helping hand. Alas! how far behind the times are the people of the Old World! What an amount of labor and turmoil, of time and money might have been spared them had they but possessed the magic pen of our Front Street author and critic! One simple wave of his delicate hand and the Assinniboine enters Lake Winnipeg; the Mackenzie becomes five hundred miles longer; the Winnipeg river ceases to exist; the Churchill, Nelson, Severn, Albany, Red, &c., are transported from their own native valleys and located somewhere in the North-West Territory. So the St. Lawrence rolls proudly on into the Atlantic; the Restigouche plunges into the Gulf of St. Lawrence.—Facts all new to Canadians.

So, also, Lake of the Woods, Lakes Winnipeg, and Manitoba are set "in the west, in the North-West Territory," and Lakes Abbittibee and Mistassini "in the east" of the same Territory. How "the gentlemen resident in the various provinces" who edited the book must have performed their tasks!

Of the same ilk are: "*In Ontario* are Lakes Superior, Huron, St. Clair, Erie, Ontario, Simcoe, Nipissing, and Nipigon" (surely this settles the Ontario boundary question, by making it include even more than Mr. Mowat claims); "In Quebec Lake Temiscaming." This latter is not only wrongly located but also improperly spelled. "New-

foundland" is included among the Canadian Islands, "on the east coast."

We are also told that "The climate of Canada is *healthy*" (We hope the *climate* may continue in *good health*. Perhaps a State doctor might be appointed to give the climate a pill regularly); and that "In the east it is colder than the west—the temperature of Ontario being continued from Manitoba westward, although nearly 700 miles farther north."

Strange climate—"colder east than west" and yet the same—Nor are we told what is "700 miles farther north." Further on we are told that "the thermometer sometimes ranges, in winter, from 30° to 40° below zero." No mention is made of the climate save this. Small wonder that Englishmen think the Canadians live under ground, when the authorized Canadian Geography describes the climate of Canada in the above terms. This description reads like a quotation from an English newspaper. Special pains have been taken to state that the St. Lawrence is frozen over five months in the year.

Why was such a geography ever authorized in a Canadian province?

Passing over such absurdities as: "The Great Pacific Railway, extending from Montreal to British Columbia;" "Quebec is peopled principally by descendants of the original French settlers, some of whom are also to be found in the other provinces," the Indian *lands* have their own villages and houses," &c., &c.; we shall direct the reader's attention to the paragraph on the Constitution of our Government. "The Dominion form of Government is the same as that of Great Britain." This is the Queen's English we suppose? "It consists of Her Majesty the Queen, represented by the Governor-General, and a Parliament. consisting of the House of Commons and the Senate." The Queen is the "Dominion *form*" of government? She is growing stout, that is a satisfaction. She is "represented by the Governor-General and a Parliament"? Many people suppose we are governed by a Parliament, composed of the House of Commons, the Senate, and last the Queen's representative, the Governor-General. Similar errors occur in the explanation of the Ontario Legislature, page 17.

Again we are told "The Provinces were united under the name of the Dominion of Canada, on the 1st July, 1867." On referring to the list of provinces we find eight named. Therefore the only inference is that these *eight* were united on July 1st, 1867. Perhaps the student is to follow the plan of the book, *i. e.*, learn the truth by having errors presented.

Trifling errors, as: "Canada was *first* discovered by Jacques Cartier, in 1535"—abound on all sides; so this one will be analysed as a sample, If Cartier was the "first discoverer" of Canada, all good authorities place the year of his arrival at 1534; but he was not the "first discoverer." The learned editor does not seem to know that Canada includes the maritime provinces, but thinks it still consists of Ontario and Quebec. Without referring to the certain discoveries and settlements of Scandinavians on Canadian shores centuries before Cartier's time, all will admit the honor of discovering Canada belongs to Cabot, who explored our seaboard in 1497. Equally reckless and wide of the facts is the statement that "Quebec and Montreal were the first towns founded by the French." Port Royal, the present Annapolis, was founded several years before either of the named places, and continued first in importance for many years. It is evident that the Rip Van Winkle editor went asleep before the Dominion was formed, as Canada is repeatedly referred to as including only Ontario and Quebec.

Why does the Minister of Education continue to permit the use of this book in Ontario?

We shall ask the reader to refer to the Geography in question, when he will find that these sixty odd *errors in fact*, occur on two pages of the work; and almost as many more have been overlooked as of minor note.

Space will not permit of more than a cursory review of Ontario, for on three pages in the text-book devoted to this province, over two hundred errors occur—more than one-half the number being mis-statements of fact or of order, and the remainder being important omissions of facts. Attention is, however, directed to the following:

"Ontario, formerly called Western Canada." Ontario lies "west and south of the Ottawa River," contains "*forty-six* counties." Dufferin County is omitted entirely. "Victoria," "Haliburton," "Peterboro'," "Hastings," and "Lennox" counties are located "*on Lake Ontario.*" "Bothwell," "Monck," and "Cardwell" are spoken of as "counties" in three separate places; then we are told, "they are, properly speaking, only Parliamentary Ridings."

What is a "Parliamentary Riding."

The great lakes, lying between Canada and the United States, are again said to be *in Ontario*. Their location, according to the oracle, is as follows: These lakes "occupy the hollow between the water-sheds, from which the rivers of the North-West Territory to the north, and those of the United States to the south, flow." Query—Where is this North-west Territory?

"Lake Superior is remarkable for the extensive copper and silver mines on its shores." Such remarkable inferences as this are found over an over again throughout the book.

The River Kaministiquia is not mentioned in Ontario or elsewhere but the following does occur: "From Fort William a road has been constructed which, with some stretches of navigation, extends to Manitoba." On turning to the map we are not surprised, but somewhat mystified to see that Fort William is *within* the boundaries of Manitoba, the province with which it is connected by road and water stretches. Besides, according to the text, *both* "the road" and the "stretches o navigation" extend to Manitoba. The "St. Mary River" and "Sault Ste. Marie Rapids" are spoken of, the author being seemingly ignorant that the names are the same, and are used interchangeably according to the whim or nationality of the writer. "Lake Simcoe is drained into Georgian Bay by the River Severn." Thus our most beautiful of Ontario inland lakes—Couchiching—is wiped out of existence. Following this mode of defining—Lake St. Clair is drained into the Atlantic Ocean by the River St. Lawrence. Further on, "Lake Huron flows into Lake St. Clair,"—this must be a fine sight—and "Lake St. Clair is a shallow lake with a *strong current.*"

Mitchell is not mentioned as on the Thames River; nor is that part of the river from Oxford County passing Woodstock and Ingersoll even hinted at. The Sydenham River is passed over—its name being entirely ignored. Important towns, as "Cayuga," "Fergus," &c., are treated with contempt—no notice being taken of them in the list of Grand River towns. "Below Grand and Navy Islands *a* series of fierce rapids *begin*," is good composition compared with the rest of the book. In describing the Falls the author details one scene viewed by few tourists, viz.: "the whole volume of the river is precipitated *over* the Falls." We feel confident it would require more than the orthodox "50c." to get a view of this wonderful scene. However, "it recovers itself and then flows with a smooth but rapid *course* towards L. Ontario."

After naming the Trent, Moira, and Napanee, we are told: "The other rivers are numerous but small." Inference—the Napanee is large?

Oakville, Whitby, Oshawa, Bowmanville, and Brighton (the latter famous for its harbor), are omitted from the list of towns on L. Ontario, but to make up for their loss, Rochester, Oswego, and Sackett's Harbor are classed among "the principal *Canadian* towns on Lake Ontario."

Again, "Large quantities of—ashes—are annually exported," and "*melons*" are "extensively cultivated." "Grapes, melons, and peaches" are the only fruits in Canada, according to this instructive work.

To whatever paragraph the attention turns mistake on mistake, blunder on blunder, impropriety on solecism, and solecism on barbarism are encountered. Even Toronto is not properly described, "Toronto was one of the Capitals of United Canada before Ottawa was chosen." The union of Upper and Lower Canada is referred to as the "United Canadas" by all good writers, and the term "United Canada" is reserved for Canada since Confederation. Again, Ontario is referred to as "the upper province;" both Hamilton and London are situated in the western peninsula, see pages 15 and 17, yet Hamilton is styled "the second city in Ontario in population and commercial importance," and London "the principal city in the peninsula." This ranks Toronto third. Further on: "St. Catharines is a favorite resort for *invalids* and for *summer residence*" is inserted to illustrate how perfectly a master mind can apply the English language.

Did time permit, the information (?) concerning the mineral products of Canada—especially Ontario, would be dealt with; but a mere reference to the omission of any mention of the plumbago, phosphate, or iron mines throughout this province is all space affords. Kingston is slighted, no account being given of the "Royal Military College," or of the "Penitentiary." Only one tribe of the Six Nations is mentioned. Some railways (two) are mentioned in the text, and the ordinary reader need only glance over the map to detect *error on error* in the location of the roads there outlined. There is no definition of a Province, a County, or a Town, nor of the functions pertaining to each. The "county towns," as such are not named: the "united counties" are not named; yet is it not of importance in many departments of life to know that Lennox and Addington, Northumberland and Durham, Leeds and Grenville, Dundas, Stormont and Glengarry, and Prescott and Russell are the united counties in Ontario? The canals are not classified. The courses and centres of commerce are not specially noted. The great inland lakes and rivers which form a net-work throughout the province, of invaluable service to the lumbermen, the farmer, &c., are not set forth.

The following towns and villages of more importance than many named are omitted entirely: Thamesville, Ridgetown, Dresden, Vienna, York, Pt. Maitland, Ft. Erie, Chippawa, Queenston, Grimsby, Beamsville, Merritton, Waterdown, Ancaster, Burlington, Yorkville, Parkdale, Leslieville, Markham, Thornhill, Weston, Ailsa Craig, Wardsville, Glencoe, Komoka, Drumbo, Palmerston, New Hamburg, Elmira, Hespeler, Arthur, Harriston, Harrisburg, Erin, Oil Springs, Wingham, Brussels, Teeswater, Flesherton, Stayner, Shelburne, Port Perry, Fenelon Falls, Campbellford, Haliburton, Norwood, Lakefield, Rondeau, Saugeen, Scarboro', Stouffville, Vankleek Hill, Loughborough, Lucknow, Minden, Morpeth, Woodbridge, Odessa, Orangeville, Orono, Highland Creek, Keene, Kemptville, Kingsville, Leamington, London East, Forest, Georgina, Hagersville, Heidelburg, Alliston, Bayfield, Clifford, Coldwater, Cookstown, Embro, Fingal, Wellington, Consecon, Marmora, Deseronto, Bridgewater, Almonte, Lanark, Exeter, Blyth, Wiarton, Waterford, Watford, Penetanguishene, Pickering, Richmond Hill, Ridgeway. Many of these are incorporated towns. How can such a book be said to be adapted for use in Ontario? Yet the immaculate G. M. Adams gazes fondly on it and the other books edited by himself, and in the most "independent" manner pronounces them to be perfect. Perfect with 100 errors on a page!

We have said nothing about the general make up of the book. The maps are inaccurate and badly executed, the printing is inferior, the paper is poor, the binding is of the most discreditable character, and is done in such a style as to benefit the publisher much more than the parents of the children who use the books. The Minister of Education has control of these matters, and on him rests the responsibility for the disgrace of having such a book in our schools. There is not one of the many American Geographies which is not infinitely superior to it in every respect. Lovell's new geographies, while not all that could be desired, are greatly superior to it in most respects, especially in typography and binding.

The sooner the Minister of Education takes action in regard to this remarkable compilation, which has been palmed off as a Canadian production to the great discredit of Canada, the better for himself and his country. By longer allowing its use, he becomes an associate in misleading and injuring the pupils of our schools.

THE NORTH AMERICAN REVIEW.—We have received the February number of this ably conducted monthly, which is now in the sixty-seventh year of publication. The first article on "Do the Spoils Belong to the Victors," by the President of Cornell University, is upon reform of the civil service in the United States. The second, "A Remedy for Railway Abuses," has an interest for Canada as well as the United States. The author points out what these abuses are, discusses the solutions that have been proposed, and suggests that the entire matter of railway transportation should be placed in the hands of the people of the United States. The third article, on "Repudiation in Virginia," is clearly and forcibly written. The fourth, on "The Lancet and the Law," is a violent attack on compulsory vaccination, the writer endeavoring to prove that vaccination is no preventative of small-pox, and that the introduction of vacine into the human system poisons and corrupts the blood. The last article, on "The Christian Religion," by Prof. Geo. P. Fisher, should be carefully read and re-read. A great mistake was made by the Editor of the *Review* when he asked, some time ago, a contribution on Religion by Col. Ingersoll and gave insertion to it. It was too coarse for the pages of such a periodical, and the arguments against Revealed Religion were too superficial to command respect or attention. The present contribution is from an opposite stand-point, is written with great perspicuity; the tone is attractive, the range of thought traversed is extensive, and the effect must be to convince the disciples of Christ that they have not followed a cunningly devised fable when they received the Scriptures of the Old and New Testament as the Word of God.

THE MONOGRAPH.—This is the title of a serial collection of Indexed Essays, published fortnightly. Each number is occupied with one essay. The numbers before us treat of Captain Kid; The Legend of Frederick Barbarossa; The British in India; and Calvin and Senetus. The articles are pleasantly written.

MAGAZINES.

HARPER'S WEEKLY continues "For Cash Only," and "Christowell." "Resurgo," a comedy by "Ouida," was begun in No. 1307. Quite a variety of subjects are dealt with, as "The United States Essay Office at New York," "Mount Washington," "The New Sea-wall of San Francisco," "Loss of the Jeannette," "The Aesthetic Visitor, Oscar Wilde," &c. The last month's numbers have been excellent.

THE MIDWINTER (FEBRUARY) CENTURY.—After the new cover, the first "midwinter issue" of *The Century* is chiefly distinguished by its unusual range of popular contributors," whose names of themselves awaken in the reader the desire to see their contributions. Of these are Ralph Waldo Emerson, Henry W. Longfellow, the late Dean Stanley, Mrs. Burnett, Mr. Howells, Frank R. Stockton, "H. H.," E. C. Stedman, H. C. Bunner, each of whom has its special audience. Add to these attractive names the other features: a fine frontispiece portrait of George W. Cable, author of "Old Creole Days" and "The Grandissimes," engraved by Cole, with a sketch by Col. Waring; another of the unique and amusing "Tile Club" papers, illustrated by ten of the members of the Club; the text (somewhat abridged) of Mrs. Burnett's play of 'Esmeralda," now running successfully at a New York theatre; an illustrated account of the growing sport of Lawn Tennis, with full directions; a review of the "Significant Features of the Atlanta Exposition" by Edward Atkinson, Esq., who, we believe, was the prime mover in that enterprise; and a beautifully illustrated paper on "The Phidian Age of Sculpture"—and it will be seen that the number contains rare elements of popularity.

ST. NICHOLAS FOR FEBRUARY opens with a story of the adventures of a Mexican prince, illustrated with a beautiful frontispiece by F. H. Lungren. Other short stories are: "The Man in the Moon," a tale full of humor, by Sophie Swett, with pictures by George D. Brush; 'The Round Stone," a Hungarian Folk story, contributed by the Hon. Jeremiah Curtin, and strikingly illustrated by Alfred Brennan; "Cornwallis's Buckles," an incident of Revolutionary times, in which figure a small girl, a cow, and the English commander in-chief—the illustrations being by G. W. Edwards; and "Lady Ann's Valentine," a tale full of interest and tender feeling, by Sargant Flint, with a fine picture by Frank T. Merrill. "Men-and-Shows, and How They are Moved About," is the title of an entertaining article by William O. Stoddard; crammed with information about the doings and fittings of circus-menageries. There are many illustrations to this, the first half of the article; the conclusion, which is to be even more fully illustrated, is promised for the March number. Mrs. Mary Mapes Dodge, the editor relates in this month's installment of her serial, "Donald and Dorothy," a gallant rescue by the hero, who bravely stops a runaway horse that was bearing off the heroine, a picture of the exciting scene being furnished by Frank T. Merrill; and Edward Eggleston, in his serial, "The Hoosier School-Boy," carries the young people of the story through stirring scenes of frontier school-life, as it was in his own boyhood; a fine picture, by George D. Brush, adorns the present installment. Dr. Eggleston also describes, in a short article, "A Curious Drama" which he saw in London, and in which Dr. George MacDonald and his family represented scenes from the second part of the "Pilgrim's Progress," of John Bunyan. Mr. Harry M. Keiffer, in "Recollections of a Drummer-Boy," gives graphic accounts of camp-life in winter during the late war, and of the terrible scenes on the field after a battle; the illustrations are by Allen C. Redwood. Several poems and humorous verses, besides comical single pictures, help to enliven the pages of this number. The "Very Little Folks' Department" has a short illustrated story by Charles Barnard; "Jack-in-the-Pulpit," the "Letter-Box," and the "Riddle-Box," are full of short and interesting paragraphs, letters from young readers, puzzles, etc.,—and there is a long Report concerning the *St. Nicholas* Agassiz Association, which now has 1,700 members.

THE POPULAR SCIENCE MONTHLY.—The contents for February are: "The Seven World-Problems," by Emil Du Bois-Reymond; "How Animals Breathe," by H. L. Fairchild (Illustrated); "Dreams and the Making of Dreams," by J. Mortimer Granville, M.D.; "Sanitary Relations of the Soil," II., by Dr. Max von Pettenkofer; "Longevity of the Oyster," by Professor Samuel Lockwood; "A Glimpse Through the Corridors of Time," by Robert S. Ball, LL.D., F.R.S.; "Epidemic Convulsions," by David W. Yandell; "Extension of the Signal Service," by Prof. J. Trowbridge; "The Fundamental Problems of Physiological Chemistry," by Dr. Edmund Drechsel; "A Botanist of the Ninth Century," by C Hartwich; "Wild Animals as Man's Associates," by Professor E. S. Morse; "The Philadelphia Academy," by J. S. Kingsley; "A Little Matter," by A. E. Outerbridge, Jr.; "Vibration of Rocks in Patapsco Valley," by Frederic Garrerson, M.D.; Sketch of Sainte Claire Deville (with portrait); Entertaining Varieties; Correspondence; Editor's Table, "The Practical Study of Mind"; Literary Notices; Popular Miscellany; Notes.

Publishers' Department.

CORRESPONDENCE.—Subscribers desiring solutions to problems or answers to questions, would confer a favor by writing the questions on separate sheets and not mixing them amongst business matters.

LINDSAY SCHOOLS.

The Separate School for boys is attended by about 200 pupils, and has attained a high degree of efficiency during the past four years, during which it has been conducted by Mr. White, the gentleman who won the prize offered through the liberality of His Grace Archbishop Lynch to the Roman Catholic student who first obtained a First Class Provincial Certificate Grade A.

The Separate School for girls is one of the best school buildings in Ontario. Everything pertaining to the health and comfort of the pupils has received due attention in its construction. The furniture and fittings throughout are of the most approved modern pattern. The intellectual and moral culture of the pupils in both schools is attended to with the greatest possible care, but Father Stafford has recognized the fact, that it is not in either of these departments that the schools of the country are weakest, and has wisely made the most thorough arrangement for the recreation and physical development of the children attending these schools. The Boys' School has a large, well-fitted gymnasium, as well as a good playground, and the girls have a large field surrounded by a high board fence, in which they are encouraged to enjoy in a real, hearty manner, games of ball and other exercises which have too long been misnamed "manly sports." These girls have an organized "snow-shoe club," and their large field affords ample opportunity for practice tramps during the winter season. Father Stafford claims to be a leader in introducing this and other games calling forth vigorous physical exercises into Girls' Schools. So far at least as snow-shoeing is concerned we think he is entitled to the credit of first introduction. Foot ball, base ball, &c., have for some time been practised in appropriate costume in Vassar and other schools for young ladies. We cannot too highly commend the wisdom and justice of the man who recognizes the fact that the physical constitution of a human being is a most important element in deciding his success or failure in life, and who believes that one of woman's best rights is a vigorous body. Such a man Father Stafford is, and he never allows a theory to grow cold or stale before putting it in practice.

MISCELLANEOUS PRIMARY-SCHOOL QUESTIONS.

What are newspapers for? What are the uses of water?
How many toes has a hen on one foot?
Why cannot a hen swim as well as a duck or a swan?
Why does it take eight shoes to shoe an ox?
Where does the rain come from, and what does it do?
What can you tell about the clock?
What would you probably see in a farm-yard?
What numbers could you write with the figures 1, 3, and 5?
How should children treat old persons?
Of what use are our thumbs?
Name some articles made of iron. Of wood. Of tin.
Tell me all you know about hay. Corn. Flour.
What are some of the things you can do with snow?
Of what use is a thermometer? A weather-vane?
What places have you visited in any city?
What is an apothecary shop? A retail store?
Name the different kinds of fruit trees you have seen.
In what position should you stand when reciting?
What must you do in order to become good scholars?
Of what are baskets made? Boxes? Bags?
Tell me something the horse can do. The dog.
Mention some things formed from water.
Name some articles of food. Of dress.
What did you see on your way fo school?
What are domestic animals? Name some of them.
Where and how is coal obtained? Wood? Oil?
Why do we not see the stars in the day time?
Can a blind person read? If so, by what means?
Where does tea come from? Sugar? Rice? Raisins?
What is the difference between a village and a city?
What season of the year is it? Month? Day? Time of day?
What do people use for fuel? For light?
Name the different modes of traveling.
Where do the different kinds of fruit we eat grow?
Name the different kinds of animals that you have seen.
What would you find at the sea shore?
What kind of vegetables do you know about?—*Our School.*

WHY SOME TEACHERS FAIL.

A recent number of the *Lansing* (Mich.) *Republican* contains the following article. It is in reply to the inquiry why some teachers do not succeed. The answer is:

They are too lazy.
They neglect details.
They have no eye to order.
They hope to get along without effort.
They are easily discouraged.
They fail to know what the world is doing.
They do not find out what other teachers are doing.
They do not try to improve.
They have too much outside business.
They talk politics too much.
They philosophize on everything but their own business.
They fail to have new ideas.
They fail to use such as they have.
They are penny wise and pound foolish.
They have become dry, stale, and repulsive to live children.
They think inferior work does just as well as good work
They are not polite enough.
They think most things take too much trouble.
They use poor judgement.
They fail to practice what the educational papers tell them.
They rely on the little stock of goods they began business with.
They do not study the children.
They forget that the art of teaching is an art that requires study.
They can see the weak points in their scholars, but not in themselves.
They are stingy towards themselves.
They read no educational papers or books.
They know so much they will learn no more.
They think they cannot learn anything more about their art.
They are trying to go into something else.
They do not determine to be the best teachers in the place.
They are rusty and without ambition.
They begin with a small stock of ideas, and have not increased it.
They follow the same method with each class.
They keep away from their pupils.
They never visit the parents.
They attend no teachers' meetings.
They do not seek for information by studying the methods of the best teachers.
They complain too much.
They do not see that the profession is as high as the teachers themselves raise it.
They do not study the great masters of the art.
They drop the school when it is over, and never think of it again until they come up before their pupils next day.
They under-rate the business.
They think anyone can teach who knows a little about studies.
They over-estimate themselves.
They under-estimate the pupils.
They think the school was made for them.
They neglect to think of the pupil's good at every point.
They do not take common sense as the guide, but hug a formalism handed down from the dark ages.
They do not study over the lessons.
They do not travel, etc., and all to be a better teacher.
They fail to manage with tact.
They are not in real earnest to teach, so that "to-morrow finds them farther tham to day."

Addendum.—They do not take THE CANADA SCHOOL JOURNAL

Teachers' Associations.

DIV. 1, LAMBTON.—The next meeting of Div. 1, Lambton Teachers' Association will be held at Alveston, on the 2nd and 3rd of February, 1882.—C. A. BARNES, President.

STORMONT.—The tenth half-yearly meeting of the Stormont Teachers' Association will be held (D.V.) in the High School building, Cornwall, on the 2nd and 3rd of February, 1882. The opening Session of each day will commence at 9 a.m. *Thursday*—Opening Address, by the President; Reading Minutes, Secretary; Drawing, Mr. Castleman; Reading (3rd and 4th Books), Mr. Wallace; Duties of the Teacher out of School, Mr. Relyea. *Friday*—Business of the Association—History, Mr. McGregor; Book-Keeping, Mr. Malden; Geometry, Mr. McCallum; A Reading, Miss Loucks. How should Public School Examinations be conducted? Moods and Tenses as treated in Mason's Grammar. A. MCNAUGHTON, President, Newington; GEO. BIGELOW, Sec.-Treas., Aultsville.

GLENGARRY.—The semi-annual meeting of the Glengarry Teachers' Association will be held at Alexandria on Thursday and Friday, the 2nd and 3rd Feb. *Programme.*—Hygiene, Dr. McDiarmid, P.S.I.; "School Master," Alex. Kennedy, H.M., Model School; Teachers' Qualifications, natural and acquired, Alex. B. McDonald; Gerunds, Participles, and Inflections, R. Seldon; History for Beginners, D. D McDonell; Grammar Text Books. D. J. Hunter; Object Lessons, Misses Ross and Simpson; Fourth Class Literature, J. C. McCabe; Vocal Music, Miss McDonald; Recitations, Miss Smart; Intermediate Literature, A. B. McDonald; Algebra, H. D. McDonald; How to Teach Composition, J. D. Houston. A full attendance of teachers is requested. D. MCDIARMID, Esq., M.D., President; W. D. JOHNSTON, Secretary.

WEST HURON.—The Semi-Annual Meeting of the West Huron Teacher's Association will be held in the Exeter Public School, on Friday and Saturday, Feb. 17th and 18th, commencing each day at 9 o'clock a. m. Programme—President's Address, Mr. J. R. Miller, I. P. S; Reports of Committees; Penmanship with Illustrations, Mr. J. H. Grassick; Time Tables, Mr. W. M. Leigh; Music in Schools with Illustrations, Mr. J. Connolly; Teachers' Home Reading, Mr. F. Crassweller; Hygiene, Mr. Geo. Holman; Discount, Mr. P. Strang; Common Errors of Speech and their Corrections, H. I. Strang, B.A; Question Drawer. On Friday evening the Session will be held in the basement of the C. M. Church, at which one or two of the subjects on the programme will be taken up, together with Readings and Music.—J. R. MILLER, I.P.S., President; S. P. HALLS, Secretary.

WEST VICTORIA.—The ninth semi-annual meeting of the West Victoria Teachers' Association was held at Woodville, on Friday and Saturday, 9th and 10th December, 1881. The Convention was opened by the President, Mr. Reazin, I.P.S., with devotional exercises. S. Gilchrist introduced the subject "Decimals," and illustrated his method of presenting each successive step to a class by means of examples. A discussion followed, and the Convention adjourned to meet at 1.30 p.m. Convention re-assembled at 1.30 p.m. The minutes of the previous meeting were read and adopted. It was moved and seconded, that in future our Convention shall meet on the first Friday and Saturday of Febuary and September.—Carried. Some business of minor importance was then transacted, and the programme resumed. Mr. Cundal introduced the subject "Deductions in Euclid," and handled it in a masterly style. A short discussion followed, after which Mr. D. B. Carmichael gave some neat solutions of difficult "Problems in Arithmetic." Inspector Knight followed with an address on "School Registers," and gave many useful hints as to the best methods of keeping them. The Convention then adjourned, to meet in the basement of the Presbyterian Church. At 8.00 p.m. a large and attentive audience met in the basement of the Presbyterian Church to hear the Rev. D. Watson, M.A., deliver one of his scientific lectures on "Astronomy." His lecture was eloquent, interesting and instructive. At the close, it was moved by Dr. McKay, and seconded by Mr. Grant, that a vote of thanks be tendered Mr. Watson for his able lecture.—Carried. *Saturday.*—The Convention was re-opened in the usual form by the President. W. E. Tilley, M.A., Head Master of the Lindsay High School took up the subject "Classifications of Fractions." He dealt with the leading points in fractions, and made it a very instructive lecture to the teachers and others present. A very interesting discussion followed by Inspector Knight, Reazin, and Mr. Tilley. Inspector Knight was asked to take the subject "Mental Arithmetic." He threw out many useful hints as to when it should be introduced and how it should be carried out. He also showed some of the errors made in teaching this subject. The Question Drawsr was now opened, and the answers to some of the questions led to interesting discussions. It was moved and seconded that a vote of thanks be tendered to Messrs. Knight and Tilley for their able assistance at our Convention.—Carried. The Convention adjourned, to meet on the first Friday and Saturday of February, 1882.

H. REAZIN, President.

HALTON.—The regular half-yearly meeting of the Halton County Teachers' Association will be held in the Palermo Public School, on Thursday, Friday, and Saturday, 23rd, 24th, and 25th February, 1882. Programme, *Thursday*—Morning Session, 9.30 a.m.—Opening; Reading Minutes and Correspondence; Appointing Committees. "The Unitary Method" vs. "The Rule of Three," J. A. McLellan, Esq., LL.D., High School Inspector. Afternoon, 1.30 p.m.—Grammar: "Function" vs. "Etymology," J. McN. Malcolm, Georgetown; "Reading in the Schools and How to Improve it," Dr. McLellan; Treasurer's Report. Evening Session, 7.30 p.m.—Lecture in the M. E. Church, by Dr. McLellan, Subject: "Parents and Teachers in Relation to the Schools." *Friday*—Morning Session, 9 a.m.—Grammar: "Rational Analysis," Dr. McLellan; "Statics," N. J. Wellwood, B.A., H. M. Oakville High School; "Principle of Symmetry," Dr. McLellan. Afternoon Session, 1.30 p.m.—"Writing," H. Husband, Oakville; "Good Questioning and Bad," Dr. McLellan; "Spelling," W. H. Grant, Zimmerman; Auditor's Report. Evening Session, 7.30 p.m.—Lecture in the M. E. Church, by Jas. L. Hughes, P. S. I., Toronto, subject: "School Room Humor." *Saturday*—Morning Session, 9 a.m.—Librarian's Report; "History," W. Davidson, Trafalgar; "A few notes on the Entrance Examination," Earnest W. Maas, Trafalgar; Election of Officers. All teachers attending the Association can be supplied with temporary homes by applying to C. C. McPhee, Esq., Teacher, Palermo, P. O.; please send name *in full*, and *at an early date*. Conveyances will meet the morning trains on the H. & N. W. Railway, at the Zimmerman Station, and on the G. W. Railway, at the Bronte Station, on Thursday, February 23rd. Please note this arrangement. No persons are appointed to lead the discussions at this meeting, but every teacher is requested to come prepared to take a part in the work of the Convention. All friends of education are cordially invited to attend the Sessions of the Convention. N.B.—Teachers who attend the Convention will please note the fact in their next half-yearly return, so that there will be no loss to their sections in the apportionment of the Legislative Grant.—R. COATES, Secretary.

EAST BRUCE.—The annual meeting of the East Bruce Teachers' Association will be held in the Model School, Walkerton, on Friday and Saturday, February 24th and 25th, commencing at nine o'clock, a.m. *Programme:* Essays—Miss Fletcher, Mr. McCool; Readings—Misses Davidson, McLean, and Messrs. Butchart, Reddon. TEACHING: Grammatical Analysis—J. Morgan, B.A., Master, High School; Geography of Canada—Messrs. Irwin and McGill; Composition—Mr. Telford, Master, Model School; Writing—Miss I. McBride, Mr. Richardson; Arithmetic—Mr. McKay, Assistant, High School. DISCUSSIONS: Cramming versus Education—Messrs. J. King, Robb; New Readers for Our Schools—Messrs. McArthur, Adolph; Desirable changes in Public School Programme—Messrs. McKechnie, McIntosh; Incentives to Study—Miss Hicks, Mr. Clendenning; A Teachers' Leisure Hours—Messrs. R. McBride, Hunter; Miscellaneous—The following teachers will introduce subjects of their own selection: Misses McNaughton, Sang, and Messrs. Leyes, Munroe. Election and Reports of Officers. Question Drawer—Difficulties in Grammar, School Discipline, Mathematics met with in actual teaching, &c., will be handed in on the first day, and answered on the second by a Committee. Friday evening—Arrangements will be made for an interesting public meeting. Persons appointed to lead in any subject may choose either address or essay. Substitutes may be obtained. Any two may exchange subjects. Any teacher refusing to take the part assigned, will please notify the Inspector at once. The initial is given when there are two teachers on the same District of the same name. Fellow-laborers, allow not indifference or a slight inconvenience to prevent you from being present at this meeting; consider it a duty you owe to the noble work in which you are engaged. Meditate upon the subjects previously, assemble early, and come determined to assist in making the meeting a decided success. If possible let each teacher perform the part assigned, and make thorough preparation, and not leave it until the day before the Convention. School Journals—The regular subscription price of the CANADA SCHOOL JOURNAL is $1, of the *Canada Educational Monthly* is $1.50. Any teacher on the District, or any member of the Association, who, during the month of January, sends the Inspector 45 cents for the former or 65 cents for the latter, will receive either paper for 1882, commencing with February; the balance of the club rates is added by the Association. Inspection—Classes using Kirkland's Arithmetic will be examined as follows: 2nd Junior, commencing with Mul.; 2nd Senior, Div.; 3rd Junior, Can. Money; 3rd Senior, Frac.; 4th Junior, Dec.; 4th Senior, Aver. Classes using Campell's or Lovell"s Geographies, as follows: 3rd Junior, World, N. and S. Am.; 3rd Senior, Can., Ont.; 4th Junior, Brit. Emp., Eur.; 4th Senior, As., Afr. For the present, teachers may require pupils to study History or not at their discretion. The Inspector will not exclude for irregular attendance when the teacher has not posted the Summary at the beginning of the Daily Register, monthly. Each inspection will be reported at once to the Trustees on blank forms provided by the Minister of Education.—W. S. CLENDENNING, Inspector; ANNA ROBERTSON, Vice-President.

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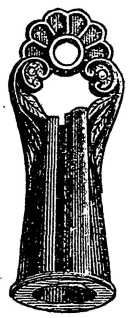

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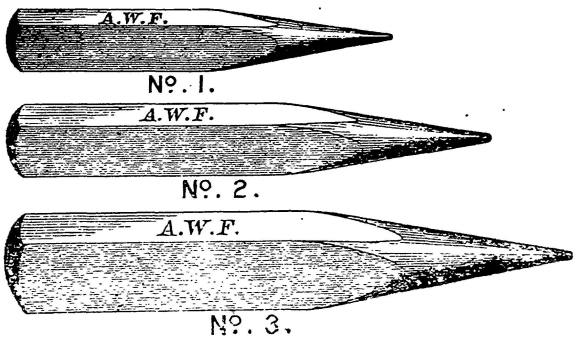

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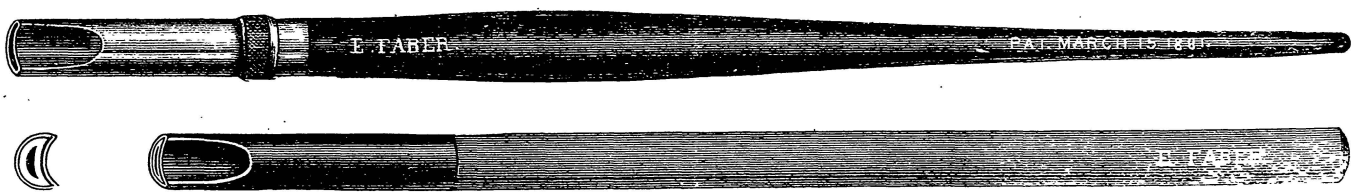

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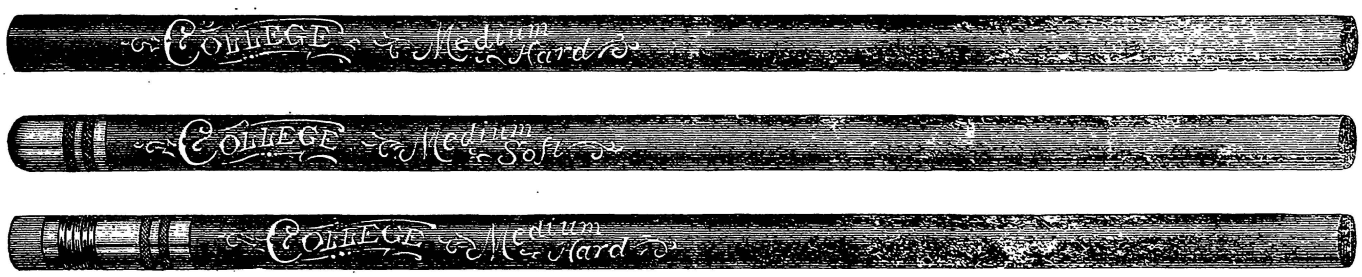

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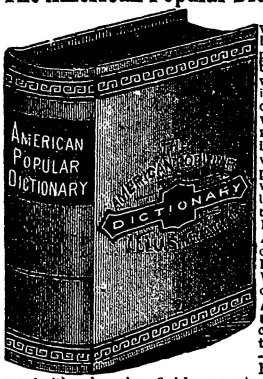

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The Canada School Journal.

Vol. VII. TORONTO, MARCH, 1882. No. 58.

SAMUEL ARTHUR MARLING, M. A.

Samuel Arthur Marling, the fourth son of John F. and Elizabeth Marling, was born at Ebley, in Gloucestershire, England, January 19th, 1830. His father was engaged in the business of manufacturing cloth at that place, where his establishment is still continued under the proprietorship of his brother, Mr. Samuel S. Marling, who represented West Gloucestershire in the last Parliament of the United Kingdom. In 1842 Mr. Marling came to Canada with his wife and family of five sons and one daughter, and was for some time engaged as an importer in Toronto, where he resided until his death, in 1869. His daughter died in early life; but his wife and four of his sons are still alive. Of these, one is the genial and painstaking Secretary of the Education Department, another, a clergyman, formerly in Toronto, is now in New York; the two others are engaged in business.

The school life of the subject of our sketch began at Devizes in Wiltshire, at the boarding school of Mr. Biggs, a fair specimen of the classical master to be found in old English towns. Here he remained until he came to Canada, when his father, who valued a good education, entered him and his younger brother at Upper Canada College. He was placed in the fourth form, and, though put at a disadvantage on account of the principal's admitting him to a higher class than his attainments warranted, soon distinguished himself. At the end of each year of his course in this institution, which extended from the beginning of 1843 to midsummer 1846, the College records show that he was awarded some prize or honorable position. When, at the early age of sixteen years and a half, he passed out of the seventh form, he received the German prize, was ranked first in Latin verse and reading, and was placed among the list of those leaving the College with honors.

After this Mr. Marling spent some time in a commercial house, but, his tastes being those of a student, he entered Toronto University in 1850. During a distinguished academic career he uniformly obtained first-class honors in the ancient classics. In 1851 he obtained a prize for proficiency in Greek and Latin, and one for English verse. In 1852 he gained the Chancellor's medal for proficiency in the evidences of natural and revealed religion. In 1853, on taking his degree, he carried off the gold medal for the ancient classics. The next twenty years of his life were occupied in teaching. He was Head Master, in succession, of the Grammar or High School at Bond Head, Newmarket, Chatham, and Whitby. In 1873, on account of his reputation and experience, he was appointed an inspector of High Schools and a member of the Central Committee of Examiners. These offices he held until his death, and, in addition, acted on several occasions as examiner in classics in the University of Toronto. During this period of his life he proved a valuable assistant, first to the late Chief Superintendent and the Council of Public Instruction, and afterwards to the Minister of Education in effecting the various improvements which have marked the history of the public and high school systems during the past eight years.

His death, which was sudden and unexpected, occurred on Sunday, the day on which his former chief, the late Dr. Ryerson, likewise passed to his rest. A fall on the preceding day gave him some uneasiness, but did not alarm or seriously inconvenience him. In order to recover from its effects he remained at home on Sunday, spent the day in reading, took his meals with his family, and conversed with them in his usual genial way. In the evening, shortly after they returned from church, he retired, taking with him Trench on the Parables to read in bed until he should fall asleep. Not long afterwards he was heard to call loudly, and, when his alarmed wife and children rushed in, he was found unable to speak and in the agony of death. It is supposed that the shock of the fall on the day before had distended an artery near the heart, and that the successive pulsations of that organ gradually increased the distention and finally effected a rupture at the weakened spot.

His funeral took place on Thursday, February 23. It was attended by a number of High School masters from different parts of the Province, who had closed their schools as a mark of respect to the deceased, by the president, professors, and students of University College, in academic costume, and by many other friends. The services in the house were conducted by the Rev. Mr. Hogg, pastor of the Charles St. Presbyterian Church, of which Mr. Marling was an elder; at the grave Dr. Davies, principal of the Toronto Normal School, read the burial service of the Church of England.

Mr. Marling married, in 1854, Miss Ellen Ada Woodhouse, daughter of the late Mr. James Woodhouse, for some years an

officer in the customs at Toronto. She, two sons, and three daughters survive him. The elder son, who is a graduate of the University of Toronto, is a missionary on the Gaboon River in Equatorial Africa; the second resides in the United States; the daughters live in Canada.

The friend, of whose life we have just presented the skeletonized facts, was in the prime of his powers and at the height of his usefulness when so suddenly called away. Possessed of a large and genial nature, which had been thoroughly trained in early life and ripened by much subsequent reading, reflection, and experience, there was still in him the promise of a valuable future. His mind was still open to receive new ideas, or to modify old ones. His character was becoming every day better appreciated. The longer one knew him, the better one liked him. Whatever may have been his faults, his heart was always right. His instincts always placed him on the side of fair play and progress. He was in the highest sense of the term an honorable man. His life was marked in an especial manner by unostentatious piety and strong religious convictions. With the culture of a scholar he never wavered in belief of the revealed truths of Christianity, and, whenever it was proper, insisted upon the principles of the Christian faith as the foundation on which all education worthy of the name must be based. But with all this earnestness there was nothing austere in his nature, and he will long be remembered for his kindly humour. He is gone; and, though we who remain cannot understand why

> The good die first,
> And those whose hearts are dry as summer's dust
> Burn to the socket,

yet it is a consolation to us, as we hope it will prove to his family, into the idyllic beauty of whose daily domestic existence death has intruded so rudely, that he still lives even on this earth for the benefit of others in the example which he has set of a life dominated by high principle and softened by all the amenities of a cultivated intellect and tender feelings.

REV. DR. RYERSON.

On the morning of Sunday, February 19th, Egerton Ryerson D.D., LL.D., passed away at the ripe age of 79 years. Dr. Ryerson was one of a class of men who are the peculiar products of a new country and a vigorous race. Strong, energetic, self reliant, he could scarcely have failed in any land or under any circumstances to leave his mark upon the history of his country. But growing into manhood in Canada at a time when its institutions were just in their formative stage, and when the people themselves were passing through the first prolonged crisis of their historical development, he could not fail to be drawn into the whirl of its religious, political, and intellectual movements. In each of those three spheres of acitivity he found a field for the exercise of his talents, and scope for the full display of that manly strength which was probably the most marked feature of his character. The promise of that strength was given in the inflexibility of will and faithfulness to conscience which led him to choose rather to leave his father's house and carve out a path for himself in the world than to renounce in obedience to a father's mandate, his adherence to the doctrines of Methodism, which he had accepted as the form of religion most commending itself to his convictions of truth. Telling manifestations of that same strength were given when he entered the political arena as the champion of the rights of Dissenters, when he, as perhaps became a faithful descendent of the Loyalists, set himself to conteract the aims and influence of William Lyon McKenzie and his followers, while none of those who from time to time crossed his path in his pursuits at a later period of his cherished educational ideas and theories, but must have recoiled under the weight of those vigorous blows which were sure to rain hard and fast upon him. Dr. Ryerson's career has been already set forth at length in the columns of the CANADA SCHOOL JOURNAL and it is uunecessary that we should again outline even the salient features of a life so familiar to all our readers. His letters in reply to Archdeaon Strachan's ill-advised attack upon Dissenters; his communications to the London *Times* on Canadian Affairs shortly before the rebellion, and the host of able reports and trenchant replies to criticism which are scattered all along the record of his thirty-two years as Chief Superintendent of Education in Upper Canada, all alike testify to the writer's intellectual vigor, indomitable resolution and unyielding tenacity of purpose. These are the qualities that contribute mainly to success, especially when enlisted, as they undoubtedly were in the case of Dr. Ryerson, in the service of an unfaltering conviction of duty. We mournfully pay our tribute of admiration and regard to the memory of an able and useful servant of the public. A great and a good man has fallen; a man to whom the Public School System of Ontario is more deeply indebted than to any other; who imparted to it an impetus which still urges it forward and which it will feel for long years, perhaps centuries to come. It is therefore meet that the CANADA SCHOOL JOURNAL should cast its wreath, as it does in all sincere respect, upon the tomb of the honored dead.

We are much pleased to notice that the Toronto Public School Board has taken steps to communicate with the other Boards throughout the Province, with a view to the erection of a monument to Dr. Ryerson's memory. Nothing could be more appropriate than that his statue should adorn the Normal School Square, and every teacher and ex-teacher in Ontario would do honor to himself in contributing towards its erection.

THE EDUCATIONAL REPORT.

The Report of the Minister of Education for 1880 and 1881 is a volume of upwards of 400 pages. It may be regarded, as to some extent, a new departure. Instead of confining himself to a mere exhibit of the legislation and work of the Department during the period, Mr. Crooks has given us in addition a repository of general and statistical information on a variety of Educational matters. The volume cannot have been produced without a great expenditure of thought and toil, and gives us the impression of great industry in the offices from which it emanates. It consists of four principal parts. Part I., respecting the Education Department, gives us an account of the proceedings during the years 1880 and 1881; statistics of Public, Separate, and High School during the year 1880; and a detailed comparison between the work and methods of the last five years under the old system, and the first five under the new.

This part also gives us some interesting comparisons of our Educational system with that of many other countries, and closes with a series of suggestions and recommendations. Part II. relates to Mechanics Institutes, and the like Societies, aided by public funds. Part III. has to do with the Universities, Colleges, and Schools endowed by the Province, and subject to the control of the Lieutenant Governor in Council. Part IV. gives facts and figures respecting Universities, Colleges, and Schools not under provincial control, but incorporated by charter or act of the Legislature. Wide as is the field thus covered, it is not, we suppose, wider than should properly come within the purview of a Minister of Education. In fact, one of the chief advantages of the change by which the supervision of educational matters was made a Government office, is that while a Superintendent of Education can legitimately deal only with the schools directly under State control, the Minister of Education may, and should give attention to all the Educational work being carried on in the Province in Institutions existing by public act or charter.

Amongst the suggestions and recommendations in Part I. of the Report, we notice one based upon the opinions of the Central Committee and the High School Inspectors, in favor of separating the High School and Intermediate Examination from the Non-Professional Examinations for Third and Second Class teachers. It is proposed to have them concurrent in the same week in order to save expense. The suggestion is no doubt a good one, as the kind of test which should be applied to determine the educational fitness of a young man or woman for entering the teaching prefession, should surely differ both in kind and extent from that suitable for testing the fitness of a High School Pupil, to pass from one form to another. The difference too in the average ages of the two classes of pupils is no doubt considerable, and should be taken into the account by those preparing the questions. Another proposal in the same connection does not strike us so favourably, "to protect teachers' examinations from candidates too rapidly prepared," it is suggested that each candidate should be required to furnish certificates of attendance for two years at the High or Public School, after having passed through the fourth class. The end in view—that of repressing the inordinate haste of the average candidate to cram up for the examination, is certainly a desirable one. Such pupils are, we can readily imagine, the bane of the Head Master's life. But the remedy proposed strikes us as a very mechanical one. It might often lead to great injustice. Have not the Head Masters the matter largely in their own hands? They have only, one might suppose, to refuse to form special classes or courses, for the accommodation of the numerous young men and women who want to be got ready for the examination in three or six months, and insist on such following the regular programme for the study of the required subjects. Of course the school might sometimes lose a pupil by this means, and this under the system of payment by results is a serious matter. That difficulty could, however, be met by concurrent action on the part of masters. But the method of making a certain period of attendance at any school a term of admission to any public examinatian, seems to us wrong in principle and tending often to discourage real merit, and after all can not the examination questions be so framed as to put all cramming, all haste, and superficial preparation at such a discount that it will soon cease to be offered? But the student who is prepared to abide the test, ought to be allowed to pass, whether he has been at school one term or ten.

Amongst several interesting facts brought out in the table in the Report in which the Comparative Statistics of Elementary Education in twenty-eight principal countrie· are given, two seem worthy of special notice. On the one hand the percentage of pupils to total population in Ontario, is higher than that of any other country. It shows that 28 per cent., or considerably more than a fourth of all the inhabitants of Canada, are at school, a statement which seems almost incredible. In Victoria, which comes next in order, the percentage is 25, while in the United States it is but 19, and in Scotland, England, and Wales but 15, other countries falling much lower. Surely the next generation of Canadians ought to be well educated. The other fact, which affords much less matter for congratulation, is that in Ontario the number of pupils to each teacher is higher than in any other country. Can it be believed that on the average each teacher in the Public Schools of Canada, has 72 to 74 pupils under his instruction and control? As many have less, it follows that many others must have more than even this appalling number. The point is one upon which practical teachers might do well to speak. To us it seems simply impossible that any teacher, even with the help of the most perfect grading and classification imaginable, can, in the presence of such numbers, do justice either to his pupils or to himself.

In view of past and prospective discussions in the Legislature and elsewhere, the part of the Report treating of Upper Canada College, will be read with great interest. The chief features of the Minister's scheme for prolonging the life of the College, have already been published and discussed. It is now proposed to add to its functions that of acting as the Model High School of Ontario, and "supplying facilities "for the professional instruction of High School Teachers', "including Candidates for First Class Public School Teachers' "Certificates, in the best methods of teaching higher sub-"jects," &c.? Such a proposal naturally suggests two distinct questions: First, that of the need of such an institution as an addition to our already extensive school system, and second, that of the suitableness of Upper Canada College for the purpose. In regard to the first point, we hold that there is no valuable end to be reached that cannot be attained much better and more simply by the addition of an accomplished Professor of Education to the Staff of University College. Such a course has been adopted at Cambridge, Eng., and at St. Andrew's, Scotland, and at several other great seats of learning. Most of our High School teachers are educated at University College, and those of them who are not would accept much more kindly, and, we venture to add, with much greater probability of benefit, a compulsory short course in Education within its walls, than in a College whose chief work is that of preparing

Students for matriculation at the University. And this suggests the Second question. Considering that High School Masters are necessarily University Graduates, the idea of sending gentlemen who have already taken their degree in Arts, to receive professional training in a College whose principal work is the preparation of boys for Junior Matriculation, does not strike us favorably. It could only at least be of use as a school of practice, in which their ability to teach could be tested. Further, have we not been assured, that Upper Canada College is nothing if not a High Class School after the manner of the famous English Schools for gentlemen's sons? Fancy Canadian gentlemen sending their sons to be experimented on by a class of young men seeking practice in the art of teaching. Let us hope that this proposal is the last of a series of efforts to prolong the life of an institution which has done its work and outlived its usefulness in its present shape. There is, as we have before pointed out, one, and but one way in which this well endowed College, can be made of the very highest service to Canadian culture. The need of a University College for women is at present our great educational need. The long want of such an institution, where young women ambitious of thorough culture might receive an education comparable with that, for which such excellent facilities are provided for young men at University College, is a crying shame and reproach to us. By devoting its halls and revenues to so worthy a purpose Mr. Crooks may make the defunct High Class School for boys a credit and an honour to the country and a blessing to generations yet unborn. Is it not of more importance to Canada that the young women who, as the mothers of the next generation will have most to do in moulding the national character, and in shaping the national future should have placed within their reach the means of securing a thorough intellectual training, than that special facilities should be provided for perpetuating Class traditions, which are out of place in this young and democratic country?

The appointment of the right man to take the place of the lamented Inspector of High Schools, is a matter of the first importance. Candidates there will no doubt be in abundance, but the combination of qualities essential to the highest usefulness in the position is rare. The new Inspector should be a man of superior ability and of thorough education, having a special training in Classics, especially as Mathematics are thoroughly well represented in the present High School Inspector, Dr. McLellan. These qualities are a *sine qua non.* But were these all, the selection would be comparatively easy. Other qualifications which unfortunately are not always associated with these, are yet well-nigh indispensable. In this "rough, raw, and democratic" country, it is quite easy to find men of good ability and scholarship, who are below par in social habits. The Inspector of High Schools should be beyond dispute a gentleman both by instinct and by training. His personal presence should be such as to command the unhesitating respect of those with whom he has to deal, many of whom might otherwise naturally be tempted to regard themselves as his superiors. His address and manner should be at the least pleasing and not devoid of a fair measure of that indescribable charm which is everywhere accepted as the unmistakable sign of good breeding. The new appointee again should be thoroughly familiar with the history, nature, and operation of the school system of Ontario. This is clearly indispensable. No stranger, trained under different conditions, and prepossessed with ideas foreign to the genius of our institutions, no matter what his educational attainments or social standing, could hope to succeed. The High School Masters too would be sure to resent, and rightly, the foisting of such an one into the vacant office. Further, the High School Inspector should be in harmory with the existing system, with the views of the Minister, and of his fellow Inspector, as far, at least, as to prevent danger of unpleasant friction. In other words, he should be a man who can work with other men, and with whom other men can work. This of course implies no necessary lack of individuality or force of character, both of which qualities are highly useful in such a position. We write without knowledge of any favoured candidate, and so without prejudice. We earnestly hope that Mr. Crooks may succeed in selecting one who will prove himself "the right man in the right place."

The Educational Systems of the Maritime Provinces are being rapidly broadened and improved by the introduction in large measure into their Common School Curricula, of the elements of industrial knowledge, scientific and artistic, which lie at the foundation of the great modern industries. In his Annual Report to the New Brunswick Legislature, in 1881, Dr. Theodore H. Rand, Chief Superintendent of Education, discussed the subject of Common School instruction in a luminous and exhaustive manner. By reference to another column of the JOURNAL, it will be seen that Dr. Allison, Superintendent of Education for Nova Scotia, in his Report recently presented to the Legislature of that Province, has written some not less weighty words on the same subject. So far as we can judge, the new Course of Study provided for the Schools of Nova Scotia, is a fair mediation between the study of letters, formative and disciplinary, as well as practically useful, and the newer studies of Elementary Science. We have no doubt that the Maritime Provinces, rich in a great variety of undeveloped natural resources, have had their industrial development seriously retarded, by what Dr. Allison aptly terms, "the bookish or literary" bias of the instruction imparted in their Schools. At the same time we are glad to observe that in neither New Brunswick nor Nova Scotia is any disposition shown to ignore the primary function of the Common School, by introducing into it facilities for elaborate forms of special instruction in mere manual processes. The bringing in of the new is not made to involve the sacrifice of what was really valuable in the old. Such books as Mr. Stetson's well-known Essay on "Technical Education," and such addresses as that of Dr. White before the American Institute of Instruction, have done much to clear the air of error as to the proper relation of studies in a Common School Course.

THE JOURNAL APPROVED.

We are pleased to find that our efforts to still further improve the School Journal and School Examiner are fully appreciated by our subscribers as the following from a Head Master of High School will show :—"Both the Journal and the Examiner shew marked improvement, not only in ablilty, but also in the general appreciation of the wants of those they are designated to help. The article "Incredible," (article referred to the proposed appointment of Mr. Hunter to the Central Committee) for ability would grace any School Journal, and assuredly its teachings will be endorsed by every unprejudiced High School Master in Ontario."

AN IMPORTANT MEASURE.

A bill has been introduced into the Senate of the United States by Hon. H. W. Blair, Senator for New Hampshire and Chairman of the Senate Committee on Education, designed to supplement the working of the common school system of the various States by aid from the Federal treasury. The gist of the bill will be gathered from the four opening sections, which are as follows :—

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That for ten years next after the passage of this act there shall be annually appropriated from the money in the Treasury the following sums, to wit: The first year the sum of $15,000,000, the second year the sum of $14,000,000, the third year the sum of $13,000,000, and therefore a sum diminished $1,000,000 yearly from the sum last appropriated until ten annual appropriations shall have been made, when all appropriations under this act shall cease ; which several sums shall be expended to secure the benefits of common school education to all the children living in the United States.

Sec. 2. That the instruction in the common schools wherein these moneys shall be expended shall include the art of reading, writing, and speaking the English language, arithmetic, geography, history of the United States, and such other branches of useful knowledge as may be taught under local laws, and may include, whenever practicable, instruction in the arts of industry ; which instruction shall be free to all, without distinction of race, nativity, or condition in life : *Provided*, That nothing herein shall deprive children of different races, living in the same community but attending separate schools, from receiving the benefits of this act, the same as though the attendance therein were without distinction of race.

Sec. 3. That such money shall be annually divided among and paid out in the several States and Territories in that proportion which the whole number of persons in each who, being of the age of ten years and over, cannot read and write bears to the whole number of such persons in the United States ; and until otherwise provided such computation shall be made according to the official returns of the census of 1880.

Sec. 4. That such moneys shall be expended in each State by the concurrent action, each having a negative upon the other, of the Secretary of the Interior, on the part of the United States, and of the superintendent of public schools, board of education, or other body in which the administration of the public-school laws shall be vested, on the part of the several States wherein the expenditures are respectively to be made ; and whenever the authorities of the United States and of the State fail to agree as to the distribution, use, and application of the money hereby provided for, or any part thereof, payment thereof, or such part thereof, shall be suspended, and if such disagreement continue throughout the fiscal year for which the same was appropriated, it shall be covered into the Treasury and shall be added to the general appropriation of the next year provided for the first section of this act.

It is provided that the Secretary of the Interior shall be responsible for the practical administration of this law through the Bureau of Education. The necessity for such a measure is urged on the ground of the painful illiteracy prevalent in some of the states and territories. Senator Blair was able to sustain his plan in a favorable manner by a compilation of statistical facts bearing on illiteracy, prepared at his instance through the Census office and the Bureau of Education, a portion of which we subjoin :

States and Territories.	Total Population.	Total population who cannot read, 10 years of age and over.	Percentage of total population who cannot read.
The United States	50,155,783	4,923,451	9.82
Alabama	1,262,505	370,279	29.33
Arizona	40,440	5,496	13.59
Arkansas	802,525	153,229	19.09
California	864,694	48,583	5.62
Colorado	194,327	9,321	4.80
Connecticut	622,700	20,986	3.37
Dakota	135,177	3,094	2.29
Delaware	146,608	16,912	11.54
District of Columbia	177,624	21,541	12.13
Florida	269,493	70,219	26.06
Georgia	1,542,180	446,683	28.96
Idaho	32,610	1,384	4.24
Illinois	3,077,871	96,809	3.15
Indiana	1,978,301	70,008	3.54
Iowa	1,624,615	28,117	1.73
Kansas	996,096	25,503	2.56
Kentucky	1,648,690	258,186	15.66
Louisiana	939,646	297,312	31.63
Maine	648,936	18,181	2.80
Maryland	934,943	111,387	11.91
Massachusetts	1,783,085	75,635	4.24
Michigan	1,636,937	47,112	2.88
Minnesota	780,773	20,551	2.63
Mississippi	1,131,579	315,612	27.89
Missouri	2,168,380	138,818	6.40
Montana	39,159	1,530	3.91
Nebraska	452,402	7,830	1.73
Nevada	62,266	3,703	5.95
New Hampshire	346,991	11,982	3.45
New Jersey	1,131,116	39,136	3.46
New Mexico	119,565	52,994	44.32
New York	5,082,871	166,625	3.28
North Carolina	1,399,750	367,890	26.28
Ohio	3,198,062	86,754	2.71
Oregan	174,768	5,376	3.08
Pennsylvania	4,282,881	146,138	3.41
Rhode Island	276,531	17,456	6.31
South Carolina	995,577	321,780	32.32
Tennessee	1,542,359	364,385	19.09
Texas	1,591,749	256,223	16.10
Utah	143,963	4,851	3.37
Vermont	332,286	12,993	3.91
Virginia	1,512,565	360,495	23.83
Washington	75,116	3,191	4.25
West Virginia	618,457	52,041	8.41
Wisconsin	1,315,497	38,693	2.94
Wyoming	20,789	427	2.05

It is a matter of regret to many that the provisions of our Dominion Census Act do not include statistical elements, of the very highest value.

Teachers' Conventions.—A number of communications have reached us from officers of Teachers' Associations informing us that a meeting of Association would be held on a certain day, and asking for the attendance of Mr. Ross or one of the representatives of the School Journal. When we say that Mr. Ross is already engaged for a number of the Associations during May, it will be at once understood that it will be necessary to communicate with us before fixing the day of meeting, should the Association desire to have any of these gentlemen present.

—We are pleased to record the appointment of Mr. White, late Principal of the Lindsay Separate Schools, as Inspector of Separate Schools for Ontario. Mr. White is a young gentleman of ability, and his training and experience have been such as to warrant the prediction that he will perform the duties of his new position with success. When Archbishop Lynch generously offered a reward of one hundred dollars to the first Roman Catholic student who would secure a First-Class certificate, Grade A, from the Toronto Normal School, Mr. White carried off the honors. We hope that he may be of great service to the cause of education generally in his new position.

—The teachers of England are to be congratulated on the fact that the Government Inspectorships are to be opened to them in future. In the past, Her Majesty's Inspectors did not require to have any practical experience in teaching in the public schools. This was clearly wrong, and doubtless led to the numerous complaints frequently made to the English Department, concerning the unjust and unreasonable actions of the Inspectors. It must have been galling to an experienced teacher to feel that his Inspector, however scholarly he might be, was often totally at sea in the school room. The new Regulation will have a most beneficial influence in elevating the general standard of the profession, and in developing a proper spirit among its members.

—We clip the following from the *London* (England) *School Master*. It illustrates one aspect of the woman's rights movement. It must not be inferred that all women on School Boards exhibit such weakness. Many of them are excellent members. "There is a good story told of the way in which the lady members of the School Board revenge themselves. The scene is a special committee, in which Mrs. A., who is interested in the matter under investigation, but not a member of the committee, is allowed to be present on sufferance, and of course cannot take part in the discussion. Mrs. B. is daggers drawn with Mrs. A., and *is* a member of the committee. Fate happens to place Mrs. A.'s chair next Mrs. B.'s, and Mrs. B. takes advantage of the situation. Selecting the largest pen she can find, she dips it as far as it will go in the deepest inkstand, and makes a point of shaking off the superfluous ink in the most innocent manner possible on to Mrs. A.'s dress. Mrs. A. (who, by-the-by, dresses better than any other lady on the Board, and therefore has incurred their mortal hatred) shifts her skirt, but is still pursued by the energetic scribe. At last, moved to remonstrance, she says, 'Mrs. B., I wish you wouldn't throw your ink on my dress.' Says Mrs. B., spluttering with her quill at a great rate, 'I can't help your dress, Mrs. A. You needn't be here, you know. You are not wanted.' How pleasant, and how truly feminine!"

—Mr. McLean, the energetic Principal of the Model School, Milton, has, in addition to his Model School and Public School duties, undertaken to prepare a class of four students for Intermediate Examination.

—Mr. Wellwood, Principal of High School, Oakville, urges the existence of only one Examination for admission of pupils to High School.

IMPORTANT ANNOUNCEMENT TO TEACHERS.

We have pleasure in advising our friends that in connection with the "Canada School Journal" we have secured the services of

G. W. ROSS, Esq., M. P. (Middlesex),

one of the ablest and most practical educators in the country.

The popularity deservedly gained by Mr. Ross as one of the most gifted lecturers that has ever appeared before Teachers' Associations in this country—has induced us to place his services at the disposal of Associations in the months of May and June, and during such months as we may find most convenient the latter part of the year.

In addition to the well-known ability of Mr. Ross, we can add the services of our

Mr. J. H. METCALFE, M.P.P. (Kingston),

—AND—

Mr. J. L. ROBERTSON,

who will at once be prepared to attend Conventions in the interests of the Journal. As both of the latter gentlemen have had a large experience in School work, much valuable aid may thus be given.

Associations desiring the presence of any of the above-named gentlemen will please note—That, as NO CHARGE WILL BE MADE *for services rendered or expenses incurred, many requests will be received for attendance at Conventions, it will therefore be desirable to communicate with us at an early date—if possible, six or eight weeks before proposed Convention will take place.*

In arranging for attendance at Conventions, please state how long services will be desired, so that it may be distinctly known how much time will be required at each place.

The circulation of the "School Journal" during the past year has reached nearly 5,000, five times larger than that of any other Educational paper published in Canada. This success, with the high praise bestowed upon the Paper by the leading Educationists in America and Great Britain, has induced us to make every effort to place our Paper in the hands of every Trustee and Teacher in the Dominion.

All communications intending to secure aid at Associations, should be addressed to our firm.

We are,

Yours faithfully,

W. J. GAGE & CO.

Mathematical Department.

SOLUTIONS TO PAPER IN FEBRUARY NUMBER

SUITABLE FOR INTERMEDIATE EXAMINATIONS.

ALGEBRA.

1. (*a*) See H. Smith's Algebra, Section 58.

(*b*) Take a as letter of reference, arrange coefficients of divi dend thus: $(2x-y)^2+0-x^2(x+y)^2+0+2x^4(x+y)-x^6$. Apply Horner's method. Quotient $=a^2(2x-y)+ax(x+y)-x^3$.

(*c*) $a+b+c=0 \therefore a^2+b^2+c^2=-2(ab+bc+ca)$

$(a^2+b^2+c^2)^2=4(a^2b^2+b^2c^2+c^2a^2)+8abc(a+b+c)$

$=$ " $+0$, since $a+b+c=0$ (A)

also, $(a^2+b^2+c^2)^2=(a^4+b^4+c^4)+2(a^2b^2+b^2c^2+c^2a^2)$, comp. with (A)

and $a^4+b^4+c^4=2(a^2b^2+b^2c^2+c^2a^2)$

$\therefore 2(a^4+b^4+c^4)=4($ " $)=(a^2+b^2+c^2)^2$.

2. (*a*) Expression $=(a+b)(a^2+b^2)=0$. Now a^2+b^2 is necessarily $+$ve unless a and b separately vanish, $\therefore\ a+b=0$.

(*b*) Ans. $a^{\sqrt{2}}-a^{-\sqrt{2}}$.

(*c*) $x^3+x^{-3}+3(x+x^{-1})=27$,
or $x^3+x^{-3}+3\ (3)=27$. Ans. 18.

3. (*a*) Multiply terms of 1st by x^{n-m}, and of 3rd by x^{n-p}

$$\text{sum}=\frac{1+x^{n-m}+x^{n-p}}{1+x^{n-m}+x^{n-p}}=1.$$

(*b*) By actual division find 1st three terms
$x^{q(p-1)}+x^{q(p-2)}+x^{q(p-3)}+$ &c. Last term must be $x^{q(p-p)}$, and the last three are $+x^{2q}+x^q+1$.

(*c*) This is a fallacy if 0 means *nonentity*, as may be seen by putting $a=1$, $b=2$. But if 0 represents a quantity less than any assignable quantity, the inference $a=b$ follows. The symbol 0 generally has reference to some other quantity from which it is derived. Thus if we have $a(x-y)=b(x-y)$, we cannot infer $a=b$ when $x=y$, but only when y approaches x in value without actually reaching that value.

4. (*a*) Every square quantity >0, $\therefore\ a^2+b^2>0$, unless $a=0$ and $b=0$.

(*b*) Put the expression in the form
$(bc+ca+ab)-(a^2+b^2+c^2)$
Now 2nd term $>$ 1st term, $\therefore$ expression is negative
For $a^2+b^2>2ab$, $b^2+c^2>2bc$, &c., since $(a-b)^2$, &c., >0
$\therefore\ a^2+b^2+c^2>bc+ca+ab$.

(*c*) Expression $=(x^2+y^2)(x+y)(x-y)^2$ and each factor is necessarily $+$ve when x and y are $+$ve and unequal.

5. (*a*) Cube by formula $(a+b)^3=a^3+b^3+3ab(a+b)$ and substitute 3 for sum of quantities, &c., $x=\frac{1}{27}(\pm 14\sqrt{-19})$.

(*b*) Add and subtract $\frac{2x^2}{x^2-1}$ on left and $=n$ becomes

$\left(\frac{2x^2}{x^2-1}\right)^2-\left(\frac{2x^2}{x^2-1}\right)-n(n-1)=0$, a quadratic from which $\frac{2x^2}{x^2-1}$ may be found, $\therefore x=\sqrt{\frac{n}{n-2}}$, or $\sqrt{\frac{n-1}{n+1}}$

(*c*) Square, &c., $x=0$, or $\frac{2a^3}{c(a^2+1)}$.

6. (*a*) Expression is symmetrical for a, b, c, and x. When $(b-c)=0$, or $(x-a)=0$ the expression vanishes, $\therefore\ (a-b)(b-c)(c-a)$ and $(x-a)(x-b)(x-c)$ are factors. And there are no other literal factors than these six, for the expression is of only six dimensions. Put $x=0$, $a=1$, $b=2$, $c=-1$, and the numerical factor comes out $=16$.
$\therefore$ Expression $=16(a-b)(b-c)(c-a)(x-a)(x-b)(x-c)$.

(*b*) $a^2+b^2>2ab$; $b^2+c^2>2bc$; $a^2+c^2>2ac$.
$\therefore\quad a^2+2b^2+c^2>2ab+2bc=4ac$ from given relation,
and $2a^2\quad+2c^2\quad>4ac$, subtracting
$a^2\ +\ c^2>2b^2$.

(*c*) $(a+b+c-d)(a+b-c+d)(a-b+c+d)(-a+b+c+d)$
$\div 4(ab+cd)^2$.

7. (*a*) 1st + 2nd $=2(x+y)(y+z)b^2$
1st — 2nd $=2(x+y)(x-z)ab$. Now 2 is not a measure
$\therefore$ G.C.M. $=b(x+y)$.

(*b*) Given $\frac{a}{b}=\frac{c}{d}$, *i. e.*, $\frac{ad}{bc}=\frac{bc}{ad}=1$.

Take identity $\frac{1}{ma}+\frac{1}{nb}+\frac{1}{pc}+\frac{1}{qd}$

$=\left(\frac{1}{ma}+\frac{1}{qd}\right)+\left(\frac{1}{nb}+\frac{1}{pc}\right)$

$=\frac{ad}{bc}(\ \text{"}\ \text{"}\ )+\frac{bc}{ad}(\ \text{"}\ \text{"}\ )$

$=\frac{1}{bc}\left(\frac{d}{m}+\frac{a}{q}\right)+\frac{1}{ad}\left(\frac{c}{n}+\frac{b}{p}\right)$, but $ad=bc$

$=\frac{1}{bc}\left\{\frac{a}{q}+\frac{b}{p}+\frac{c}{n}+\frac{d}{m}\right\}$.

(*c*) Take square root of both sides. Observe double sign.
$(a^2+bc)(b^2+ac)(c^2+ab)=\pm(a^2-bc)(b^2-ac)(c^2-ab)$
Take upper sign, reduce, divide through by $a^3b^3c^3$, and we get $\frac{1}{a^3}+\frac{1}{b^3}+$ &c., $=0$. Take lower sign, reduce, divide through by abc and $a^3+b^3+c^3+abc=0$.

8. Area $=pq-(p-2r)(q-2r)=2r(p+q-2r)$.

9. Let x=rate of train, y of coach
$\therefore\ 20x\div y$=length of journey, and $(20x\div y)-56\div$part by coach
$\therefore\ (20x\div y^2)-(56\div y)$=time by coach,

whence $\frac{20x^2}{y^2}-\frac{56x}{y}=35+\frac{20x}{y}-56$

and $x:y=7:2$ or $3:10$. But the latter value makes the distance by coach —ve, and therefore does not apply to the problem. Ans. 7:2.

10. Let R=amount of \$1 for 1 year, x, y, z=present shares.
$\therefore\ x+y+z=P$; $xR^a=yR^b=zR^c$. Substitute for y and z in first equation, and multiply numerator and denominator by R^{b+c}, then

$$x=\frac{PR^{b+c}}{R^{a+b}+R^{a+c}+R^{b+c}}.$$ Write y and z by symmetry.

SOLUTIONS TO VICTORIA UNIVERSITY MATRICULATION PAPER.

ARITHMETIC.

1. Book-work. See Hamblin Smith's Arith., Sec. 99 and 102.
".475 of $\frac{S}{5}$" should read "of $5S$."
Ans. £3 10s. 7d.

2. The cost is the same. Paper 27 in. wide at 9c. is the same rate as paper 24 in. wide at 8c.

3. Book-work. L. C. M. of A and B
$=AB\div$G. C. M.
$\therefore\ B=$L. C. M. $\times$ G. C. M. $\div A$.
$=634938944494\times 9187\div 85044059$.

4. Book-work. Chicory $=\frac{3}{7}$ first $=270$lbs. $=\frac{7}{17}$ second mixture.
$\therefore$ second mixture $=\frac{17}{7}\times 270=655\frac{5}{7}$lbs.
Increase $=655\frac{5}{7}-630=25\frac{5}{7}$lbs. =coffee added.

5. Interest $=\frac{1}{10}$, $\therefore$ discount $=\frac{1}{11}=9\frac{1}{11}\%$. But if 10% per an. is meant the anawer is slightly different, viz. :
Interest $=\frac{12}{15}$ of $\frac{1}{10}=\frac{2}{25}$, $\therefore$ discount $=\frac{2}{27}$, &c.

6. 4 men $=$ 7 women $=$ 14 boys
6 men + 10 women + 14 boys $=\$\frac{110}{8}$ per day,
$\therefore$ 10 men + 10 women $=$ "
1 man + 1 woman $=\$\frac{11}{8}$
$\frac{11}{7}$ men $=\$\frac{11}{8}$, $\therefore$ man $=\$\frac{7}{8}$, woman $=\$\frac{1}{2}$.
Answer \$100.

7. $\{\frac{2}{3}$ capital $\div 90\}\times 3\frac{1}{2}+\{\frac{3}{5}$ capital $\div 95\}\times 4=\$1340$.
Capital $\{\frac{7}{150}+\frac{12}{475}\}=1340$
Capital $\{\frac{19}{18}+\frac{12}{19}\}=1340\times 25$, &c.
Capital $=\$32828\cdot 08$.

8. Shell = external — internal dimensions ;
$=\pi r^3-\pi r_1^3=\pi(r^3-r_1^3)$
$=\frac{22}{7}\{(\frac{7}{3})^3-(\frac{5}{2})^3\}$
$=\frac{22}{56}(343-125)=85\frac{9}{14}$ cubic inches.

9. $\frac{1}{2}$ sum of sides $=47$, difference between this and each side 19·5, 31·5, 34·5, 8·5.
$\therefore$ area $=\sqrt{19\cdot 5\times 31\cdot 5+34\cdot 5\times 8\cdot 5}$
$=\frac{3}{4}\sqrt{13\times 21\times 69\times 17}=424\cdot 42$ nearly.
N.B.—Probably the figure is not a trapezoid, for if we calculate the perpendicular and apply the rule for tapezoids the area comes out $=408\cdot 75$.

10. Let x=annual payment, then
$x\{1+1\cdot 06+1\cdot 06^2+1\cdot 06^3\}=9000$
$x(4\cdot 374616)=9000$
payment $=\$2057\cdot 323$.

ANSWERS TO CORRESPONDENTS.

W. F. M. asks, "Is there a regular progression in prime numbers." We believe not, as it can be shown that no general algebraical formula can represent prime numbers only.

H. M. B. wishes us to point out the fallacy in the following proposed solution of No. 4, First Class Arithmetic, July, 1881. See Nov. No., '81, also Dec. No.

2% of $\$180 = \$3\frac{3}{5}$,

$\therefore$ disct. off \$90 for 101 dys. + disct. of \$90 for 40 dys. $= \$3\frac{3}{5}$

$\therefore$ disct. off \$90 for 141 dys. $= 3\frac{3}{5}$

$\therefore$ int. on $\$86\frac{2}{5}$ " " $= 3\frac{2}{5}$

$\therefore$ " \$100 " " = &c., $= \$10.78$.

The fallacy lies on the third line. The discount on \$90 for 101 days + discount on \$90 for 40 days is NOT = discount on \$90 for 141 days. The discount *does not* vary directly as the time, as here assumed, of course interest *does* vary directly as the time.

Contributions.

THE TEACHERS' APPEARANCE IN THE SCHOOL-ROOM

SUBSTANCE OF A PAPER READ BY MR. HEWITT BEFORE THE MANITOBA TEACHERS' ASSOCIATION, WINNIPEG.

It is hard, he said, for one so young and inexperienced in the profession as I, to say what appearance the teacher should at all times assume in his school; but I will give you my ideal of what it should be, and should I advance any thought worthy of criticism I hope to profit by having it thoroughly and fairly discussed.

I assume that the teacher's appearance in the school-room includes his dress, habits, language, sentiments, tone of voice, bearing, expression of countenance, etc.

With regard to dress the teacher should in a great measure adapt himself to circumstances, but the following general rule will be found to apply in all cases: he should neither dress so gaily nor so meanly as to make his dress an object of special notice; in short, the teacher himself should be the attraction, and not his dress.

The habits of a teacher should be such that if copied to the letter they may not be injurious to his pupils. This will, of course, prohibit him from the use of tobacco and intoxicating liquor, for, though individuals differ as to the effects of these on adults, all agree that they are very injurious to children; but while he abstains from such things himself he will also do well to abstain from any unpleasant remarks concerning those who use them, for injuring one person is not the way to insure correct habits in another. The habits of an upright teacher will also include punctuality, earnestness, calmness, kindness, gentleness, firmness, truthfulness, etc. If he is not punctual he sets a bad example to his pupils, and also renders himself unable to carry out any regular programme without which his teachings cannot be successful. He should be earnest, because his contract with his trustees calls for earnest work, he will be earnest because he delights in his work, and he feels he must be earnest because he is working not only for time, but also for eternity. He should be calm as well as earnest, for an excited or blustering habit renders him unfit to maintain good order in his school, and thus becomes as great a barrier to success as want of punctuality. While the ideal teacher is at all times calm, gentle, and kind, he is also firm, and will not shirk even the painful duty of inflicting corporal punishment when he is sure it is for the benefit of all concerned. Truth is the very basis of education and he ought to show by his appearance, in every possible way, that he is aiming at it regardless of what theories or hobbies may be overthrown by it. His motto should be, "I will hew to the line, let the chips fall where they may."

At all times, but especially in the school-room, the teacher will find it to his own advantage, as well as that of his pupils, to use only well chosen words. The use of low, vulgar, or incorrect words is to be avoided, for the language of the teacher will be the language of his pupils. The use of good language by the teacher is closely connected with the sentiment that pervades a school for which the teacher is, to a great extent, responsible. But he finds little difficulty in this matter if he is careful not to color his opinions too highly in order to serve his own selfish interests.

The tone of the teacher's voice will express his feelings more forcibly than his words will, however well chosen they may be, hence he should be careful that his words accord with the tone in which they are uttered. By the skilful use of his voice he can indicate his approval or administer a reprimand without causing either jealousy or ill-feeling toward himself or others, whereas the same words uttered in a different voice would be certain to rouse a spirit of rebellion.

To be successful in governing a school it is necessary that all words of command be uttered kindly but firmly, and while the tone in which they are spoken indicates a desire to dispense even justice, it should also exhibit a spirit of mercy.

The bearing of a public school teacher should be neither haughty nor meanly condescending, but should rather be that happy mien which willingly recognizes honest worth even when found among the lowest, and at the same time curries the favor of none, not even the highest. Such a bearing will command the respect of all worthy persons, and secure for him a social position he could not otherwise attain.

It is very desirable that a teacher be always cheerful, and maintain a pleasant countenance while in the school-room. There is a great deal of truth in the belief of Edmund Spenser that "outer beauty springs from the beauty of the soul within." It is impossible for one to maintain a pleasant countenance while within he is full of rage, sorrow, grief, or any other passion, or while he is undergoing bodily suffering. For example, a person suffering from headache, toothache, etc., cannot possibly be cheerful; a person suffering from dyspepsia is generally melancholy and peevish. It may be asked, how is the teacher to avoid the many ills which tend to injure his pleasant countenance? My answer is, he should have complete control of his passions, should not worry too much about the future, and should always look at the bright side of everything. He should also thoroughly understand himself. Our bodies are governed by natural laws, laws which we are capable of understanding and obeying, and we should obey them if we wish to enjoy good health and a cheerful countenance here; and further, we must obey them if we wish to be happy in eternity, for "the laws of nature are the laws of God."

Mr. Springer introduced the general discussion of the subject. While he agreed with most of the points brought forward he thought that there was a danger of paying too much attention to personal appearances. Young persons sometimes spent hours of valuable time before the looking glass. This tended to foppishness, which was the twin sister of laziness. Some men of the highest positions paid the least attention to their personal appearance. He illustrated this from his observations of five millionaires, and from the case of a very learned gentleman, a great linguist, in Toronto. He did not mention these cases as examples. If a teacher could not afford a better coat it was no disgrace to wear a patched one; if clean, it would be respectable. The teacher should set an example of cleanliness, and we should require attention to this matter on the part of the pupils. The speaker concluded by expressing his approval of the recommendation that the teacher be cheerful.

REPORT OF REV. CYPRIAN PINKHAM, B.D. CONCERNING HIS VISIT TO ONTARIO AND QUEBEC, PRESENTED TO THE MANITOBA BOARD OF EDUCATION.

(Winnipeg Free Press.)

A special meeting of the Protestant section of the Board of Education was held in the education office on Tuesday, Dec, 27th, the members present being Rev. Prof. Hart, (called to the chair), Rev. Canon O'Meara, S Mulvey, W. Hespeler, W. J. James, Rev. W. C. Pinkham, Superintendent of Education, and the Bishop of Rupert's Land, and Rev. Dr. Rice.

The minutes of the last meeting were read and confirmed

The Superintendent stated that the Rev. Alex. Matheson had resigned the office of inspector of schools for Springfield and parts adjacent, and moved, seconded by Canon O'Meara, that the resignation be accepted, and that Mr. John B. Ferguson be appointed to the position. Carried.

The Superintendent then read the following report of the text-book committee, which on motion of Mr. Mulvey, seconded by Mr. Hespeler, was unanimously agreed to, viz;

EDUCATION OFFICES, WINNIPEG, December 21st, 1881.

At a meeting of the Text-book Committee held here to-day, Rev. S. D. Rice in the chair, it was unanimously resolved to recommend.

1st. That the following books be authorized for use in the Protestant public Schools, viz:

(1) English Readers by Prof. Meiklejohn adapted for use in Canadian schools, to be used exclusively in all schools opened after this date, and all the Protestant public schools after January 31st 1883.

(2) Outlines of English Grammar, Mason.
(3) English Composition, Harrison.
(4) Outlines of Canadian History, Jeffers.
(5) Calkin's Geography for junior classes.
(6) Practical Speller, (published by Gage & Co.)
(7) Pretty Stories, (composition) Kellogg.
(8) Mental Arithmetic, Dr. McLellan.
(9) Canadian Accountant, Beatty.
(10) Science of Accounts, Dr Bryant.

2nd. That the following be removed from the list (after January 31st, 1883, viz.)

Composition, Quackenbos, Easy Lessons in Geography, Lovell.

3rd. That the following be recommended for teachers use viz.

Algebra, Dr. McLellan's.
Examination questions in arithmetic, McLellan.
Object Lessons, Calkin.

A number of petitions for new school districts were then laid before the meeting, and were, on motion duly seconded referred to the executive committee, who were empowered to deal with them.

The Superintendent then read the following report;

To the Protestant Section of the Board of Education.

GENTLEMEN:—At our last meeting, held on the 17th of October, I was instructed by you "to proceed as soon as possible to the eastern provinces, for the purpose of visiting some of the principal Normal, Model and High schools of the Dominion, and on my return, to report to you upon a system of High Schools and Training Schools, for the Province of Manitoba."

Before setting out on this mission I felt that it was my duty to submit the question of my going to the Provincial Secretary for the concurrence of His Honor the Lieut. Governor in Council, and I need hardly say that the answer I received was satisfactory. I was told "The Council had no objection to your absence, being sure that your mission will advance the cause of education in this province." Accordingly I left home on the 24th of October, and returned on the 29th of last month, being absent a little over a month. I spent several days in Toronto, visiting the Department of Education, Normal and Model schools, the Collegiate Institute, the public day and night schools, and other educational Institutions, and I was present for a short time at a meeting of the Board of trustees for the city. I was three days in Ottawa, and saw the Ottawa Normal and Model Schools, and the Collegiate Institute. I spent nearly a week in Montreal, during which time I had the opportunity of visiting the McGill University, the McGill Normal School, the Model Schools in connection with it, the high school for boys and girls, the primary high school, and two or three public schools of the city, as well as the Mackay Institute for deaf mutes. I spent an afternoon and evening at St. Catherines and in the company of my friend Mr. J. B. Somerest, inspector of the schools for the county of Linclon, visited the public schools and Collegiate Institute of that city. I went to Boston, being told that there I should see the most flourishing educational institutions of the great republic, but unfortunately, just as I arrived, all the schools were closing for the rest of the week, to celebrate the national thanksgiving, and I felt reluctantly obliged to limit my visit for a few hours, during which I made the acquaintance of the secretary of the board supervisors, and obtained valuable official documents from him. On my way home I spent the greater part of a day at Minneapolis, during which, besides visiting one of the primary schools I was shown over the admirable high school of that city, and saw something of the work done there.

When I left Winnipeg I intended to go to Nova Scotia and New Brunswick, but having only a limited time at my disposal, and feeling that the whole of it might have been spent with exceeding advantage either in Toronto or Montreal I deferred my visit to these interesting portions of the Dominion to a later date.

I visited the Art institutions in Toronto, Ottawa, Montreal and Chicago.

The object of my visit implied the making myself and it known to the leading educationists wherever I went, from all of whom I met with the utmost kindness and encouragement. I deem it no slight privilege to have had intercourse with such men as Prinicipal Dawson, Dr. Wilson, president of Toronto University, Canon Norman, D. C. L., the cultured and able chairman of the Montreal Protestant school commissioners, whom every pupil of the public schools seems to love, Mr. Murchey, Principal of the Toronto Collegiate Institute, Inspector Hughes, who by his energy and ability has elevated the public schools of Toronto to a very high standard indeed, Dr Robins, superintendent of the Protestant public schools of Montreal and those who fill positions in the Department of Education in Toronto and in the different normal, model and high schools of the captial and the two leading cities of the Dominion. At the request of some of my friends I delivered a lecture there on the "Educational Outlook in Manitoba," which was warmly received.

You will, I am sure, be pleased to hear, that even in Ontario—whose educational system received the highest encomiums at the Centennial exhibition, and among such men as I have mentioned, Manitoba is credited with being in some of the leading features of her educational system, in advance of that most enlightened Province. In our University system; in such features of our school law as the superintendents instead of a minister of education; in the appointment of our inspectors by a Board such as this, rather than by the councils of the different municipalities, in the power now employed by school trustees throughout the Province, to determine the amount of money to be raised in their respective districts, to supplement the Legislative grant; in the payment of a lump sum to such school rather than the system of payment by results; and in the proposed programme of studies in use in the cities and towns of Manitoba, with which the name of J. H. Stewart, inspector of city schools, must always be attached, some of the leading educationists whom I have met with do not hesitate to say that we have surpassed them. They think, too, that in exercising our judgment, as to the adoption of what will suit Manitoba, whether from the older provinces, the mother country or the United States, we are not only within our right, but are exhibiting the true spirit of master-builders who are from the special circumstances in which we are placed, preeminently "the heirs of all the ages;" and, recognizing the wisdom and breadth of view exhibited by us in laying our educational foundation, they anticipate a superstructure that will eclipse all others. And if, while in Toronto, on which I found it difficult to turn my back, when the time came for me to do so, where I gladly admitted that we had received from their elaborate system much that is extremely valuable, I felt proud to be the honored representative of this Board and rejoiced to think that I had a share in bringing about results whose value is so generously admitted the feeling you will say was a natural one. But beyond all this I was specially gratified to find that my ideas about the development of our system in the direction of high school work, and the training of our teachers, were warmly endorsed by many of those whose professional opinion deserves to be carefully considered.

The best friends of any system are not those who close their eyes to its defects. The high school system of Ontario, although it has accomplished gratifying results, is not in the opinion of its most ardent supporters perfect. It has been very costly. It has frequently drifted into a most unsatisfactory rivalry with the neighboring common schools—two most serious objections, due in my opinion in a very great degree to the fact that high schools and common schools are managed by distinct boards of trustees. Then, its teachers, even in these days when so much importance is attached to a pro-

fessional training, are not required to be taught how to teach; and, from the way in which the Legislative grant for high school work is apportioned, cramming and high pressure become not only possible, but as one of the ablest and most intelligent of the high school teachers of the province frankly admitted, a necessity. As the Rev. George Bruce, B.A., of St. Catharines, puts it in an article published in the Canadian Monthly for May and June, 1879, "To reward a school according to the number of pupils it can "cram" through the intermediate examination, and condemn it for turning its attention to the process by which this can be most successfully accomplished, is like training a retriever to bring game to you, and then scold him because he brings it. Suppose prizes were offered at Lloyds' to the vessel which carried the greatest number of passengers across the Atlantic in the shortest time, one would read with surprise of captains and engineers being reprimanded for taking a large number of passengers on board and running under high pressure of steam. There might be officers who valued the lives and comfort of their passengers more highly than the inducements held out in the foolish and criminal arrangement, but no thanks to the arrangement. And if, in the competition which arose among vessels, and under the influence of placarded results of the numbers landed in Liverpool or New York every half year by each vessel, owners learned to employ captains who were successful, only one result could be looked for. So long as the system continued in force seafaring men would be compelled to accept the situation no matter how much against their judgment, or else abandon their occupation."

After weighing the matter in my mind for almost a year, and with the impressions and influences of my recent visit to Ontario and Quebec fresh upon me, I venture to propose again to you to ask for such legislation as will provide a machinery under which a higher department of education to be called "The Collegiate department of Public Schools," may be established by boards of school trustees in cities and towns. In the city of Montreal the high school, the high school for girls, the senior school, are under the control of the Protestant board of school commissioners or trustees. In Boston the high schools from the third grade of the system of public instruction established in the city; and in them a course of advanced study is provided for those who have completed the course in the grammar schools—the grammar schools being the second grade in the system, in which are taught the common branches of an English education. In Minneapolis the high school—the building is a most admirable one—is an integral portion of the public school system.

We want to supply the connecting link between our admirable system of common schools and the University of which we are so proud. Under our present law incorporated cities and towns are entitled to three trustees for each ward. In my opinion a majority of these may safely be entrusted with the responsibility of determining, with the sanction of their section of the Board of Education, whether there shall be a department in connection with their schools in which higher work shall be taken up or not. Or, if it be thought desirable the consent of the ratepayers, given at a public meeting convened for that purpose, might be required. The section of the Board of Education would of course, arrange for the qualifications of the teachers required, prescribe the course of study, determine who should attend such schools and make all necessary arrangements for their efficiency and good government.

I propose to add to the programme of studies already referred to, two grades or standards, that would take pupils up to matriculation in the University.

I think any scheme to develop what is termed higher education, such as the one proposed, would not be completed if it failed to recognize the work done in the schools connected with the three colleges now in existence, or in any other schools that may be opened under similar circumstances, and for much the same work. We must assume that the state wants to have educational institutions opened and carried on, and that she is willing, as far as the public funds will allow, to give assistance wherever and to the extent that *boni fida* work is done.

Then, until the University has funds of its own—a condition eminently desirable, and one which its friends ought to determine to bring about with as little delay as possible—the Legislature should be asked to vote annually a sum of money to be spent in scholarships, the examinations for which, conducted by the University, should be open to pupils of a certain age from any part of the province, and the winners of such scholarships should be called "University scholars" and have the right to pursue their university course in any of the colleges constituting the University, and to hold their scholarships until they graudated. I think two or three thousand dollars spent in this way would provide a stimulus which would be exceedingly gratifying in its results.

In my opinion the time for establishing a Normal School for the training of teachers for this Province has fully come. It is true that a large number of our teachers are drawn from the ranks of the teaching professions in other Provinces. No doubt this will be the case for some time to come, and no one extends a warmer welcome to good teachers from other Provinces than myself. But with those who are really good, and who are almost certain to do well wherever they go, there are many who have been failures elsewhere, and a number whose attainments are far from satisfactory. Those who have had anything to do with our teacher examinations know that a number of those who came to the Province with third and even with second-class certificates are scarcely able to pass our examinations. At the last examination the ignorance displayed in reading and spelling, not to mention other subjects, was most glaring. Teachers profess to know a great deal about Algebra, Geometry, Chemistry, Natural Philosophy, and so on; they can give you pages of Grammar, and yet they can't express themselves correctly either in speaking or writing. We require them to pass an examination in a number of subjects, that as teachers in country schools they will actually never need—I am not speaking of the value of these subjects as education—and although probably seventy-five per cent of all the children who go to school never attain to any very high standard, of intellectual excellence, but really need to know how to read and write and so on, we employ teachers who have never been taught the true value of these subjects and who are unable to teach them as they ought to be taught. I am not blaming our teachers. I find fault with the system under which they have received their training. In a training institution of our own, we could make thoroughness in reading, spelling, writing, accuracy of speech, composition, a *sine qua non*, and it would be much easier than it is at present to advance to the acquisition of subjects which, however valuable they may be, are not as essential.

The real and practical, the absolutely necessary, is what educationists in these days overlook. We must not be carried away, but must claim and exercise the privilege of thinking for ourselves, and adopting what we believe will most effectually meet the educational requirements of our Province.

We ought then in my opinion to have in Winnipeg, within the next twelve months, a first-class Normal School building, thoroughly equipped. With the extent and value of our school lands, there should be no difficulty in getting the funds required for such an object, and if a site should be obtained near the Central School, the departments there would suit for Model schools. But if we can't get a building especially for the purpose, we ought to make an arrangement with the city trustees whereby those persons throughout the Province who desire to become teachers may have the opportunity of studying in the higher departments of the Winnipeg public schools.

In the last two teacher examinations those pupils of the city schools who were candidates were as a rule very successful; and some of the most valuable of our younger teachers have had their sole training there. In passing through some of the best of the public schools of Toronto, I was especially impressed with the skill displayed in original drawing. The three and five minute work done while I was there was almost astonishing. I was also highly pleased to find considerable attention given both in Toronto and Montreal to singing and calisthenic exercises. I intend to propose to the trustees of Winnipeg, Portage la Praire and Emerson to unite in employing a drawing master. If they fall in with the suggestion I can recommend for the position a gentleman who called on me while I was in Toronto, the head master of one of the high schools of Ontario, who while possessing the general qualifications of a first-class teacher has a thorough knowledge of this subject, and can for the present easily teach it in the city and the towns I have named.

Let me say now that while in my opinion we have reason to be pleased with the progress made, there is plenty of work before us. I am not satisfied with the condition of the majority of our rural schools; and there is throughout the Province an extraordinary apathy regarding education. I hope to visit from time to time, as my officer's duties will permit, different parts of the Province; to give information respecting the school law; to try and lead people to see the value of education, and if possible to get parents, teachers and trustees, to feel an enthusiastic interest in it. I hope that we may be able to secure as inspectors thoroughly competent and energetic men, and I expect to have everywhere the active sympathy and

co-operation of members of the learned professions. Changes in the law may soon be needed, viz., making schools districts, co-terminous with municipalities, each township being a ward for the election of one trustee,—the trustees to be paid for their services, like county councillors, and so on; levying the school tax on real estate only; and estimating all land whether under cultivation or not at the same value; requiring trustees to keep the school open for a certain number of months in the year, and encouraging them to make such arrangements as they may deem necessary for having all the children in a school district, whose education is not otherwise provided for, attend school, etc., etc.

One thing is certain; for all we have to do we must have sufficient funds. We ought to have a grant of from forty to fifty thousand dollars per year at least, apart from what may be required for a Normal School. I am sure that if instead of giving one hundred dollars per annum to each of our schools, we could give two hundred, they could be carried on much better and would accomplish more gratifying results than at present. And if the salaries of those engaged in this important work were better than most of them are at present, better work and much more of it would be done. We ought to have the very best people—people of cultivated minds—people whose heart and will are in their work, and to get these we must pay liberal salaries. In a country like ours, where so many avenues are open to energy and ability, teachers must be well paid or the profession will be left largely to those who, for the most part, are its least efficient members.

I desire to offer my warmest thanks to my friend, Mr. Mulvey, for his great kindness in discharging the duties of my office during my absence; and to you all, gentlemen, for affording me one of the most enjoyable recreations I have ever had. The time not consumed in travelling was very fully occupied. I have obtained a great many ideas which, although not sufficiently important to find a place in this report, will be worked out as time goes on, I tried, too, not only to receive, but to give information. But the change itself was a rest, and I feel all the better both in mind and body for it.

Respectfully,
W. Cyprian Pinkham.

Education Offices,
Winnipeg, Dec. 19, 1881.

Moved by Professor Hart, seconded by Canon O'Meara, That the report be received; that the Superintendent be warmly thanked for it, and that his travelling expenses, amounting to two hundred and fifty dollars be paid.—Carried.

Moved by Mr. Mulvey, seconded by Prof. Hart, That the report be printed in pamphlet form for distribution.—Carried.

The meeting then adjourned.

MEDICAL INSPECTION OF SCHOOLS IN BRUSSELS.

The 33 schools of the city of Brussels, which are supported wholly or in part by the public funds, have been since 1874 subject to regular sanitary inspection by the Board of Health. This is done through 5 medical officers who devote their whole time to the work. The objects for which this sanitary supervision was undertaken, and which have thereby been to a good degree already attained were: (1) to secure the uniform observance of hygienic law's with regard to cleanliness of buildings, water closets &c., ventilation, heating &c., and to call *immediate* attention to any violations thereof or to unhygienic conditions in, or about any building; (2) to prevent the spread of infectious diseases in, and by means of the schools; (3) to determine beforehand what children are liable to suffer injury, by reason of some constitutional tendency, from the course of study and discipline, that others might bear without harm, and to make such pupils the object of special care with a view to building them up physically; and (4) to assure to the pupils, proper sanitary instruction, so that the schools shall become a means of diffusing, both by precept and example, information with regard to sanitary laws among the people. These blanks which are their "means of controling and putting upon record the effects of the *school régime* upon the health and progressive development of the child," are taken from the report of Doctor Janssens, chief of the Health Department of Brussels, read before the International Educational Congress, Aug., 1880, at Brussels. The scope and practical results of the system can best be given in the words of Dr. Janssens and those of his colleague Dr. Bonmariage who also read a report before the same body. Extracts from the former will be marked (J), from the latter (B).

"What is needed to secure to this numerous group (children in school) the benefits resulting from the progress of the sociological sciences? One single reform; viz, the establishment of a hygienic and rational supervision of schools. * * * "The authorities have completely ignored that vital question for the youth in school." The medical inspctor "should possess some aptitude for teaching that he may readily know when to give the children elementary notions of hygiene; when he should describe to them, for example, the results of the abuse of alcoholic drinks, and of tobacco, the dangers of the remedies of charlatans and of the prejudices constantly reappearing against vaccination; when he can develop certain critical observations, for which his weekly visits will furnish him the occasion, on the subject of vicious attitudes of the causes of nearsightedness, of the unseasonable use of clothing too warm, or too thin &c., for example "He should know thoroughly the exigencies of a school building, with its class-rooms and dependencies, he should look after the methods of lighting, natural and artificial, the choice of apparatus for warming and ventilation, and apply himself diligently to the study of the many questions which form a part of the code of modern school hygiene."—(J).

"The best constructed buildings may be renderd unhealthy by the negligence of those in charge of them. The medical inspector should look out for any defects which may arise in the working of the warming or ventilating apparatus; oversee the condition of the furniture, the way the building is kept in repair, the conditions of the walls, water-closets, sinks and other dependencies; and at the first appearance of a defect of a nature to compromise the healthy state of the premises, he should refer it to the authority by which the school is made right. His attention will be especially directed to the condition of the air as to purity, as to alteration by dust, by corporeal emanations, by fetid gases, by carbonic oxide and by carbonic acid in excess. He should examine the thermometric bulletins which should be placed in each class-room, and ascertain whether the 4 daily observations have been duly registered by the teacher or by his assistant. In short, he should see whether the teacher has rationally acquitted himself of the care which devolves upon him with regard to the renewal of the air in the class-room."

"In the daily observations of the temperature, he should not be satisfied with the averages taken by the teacher in the one spot where the thermometer is hung, but he should take in person, the temperature at different heights, at the level of the floor, and at the height of the pupils' heads, and should note, to have them remedied, the differences existing between the different strata of air." "The aim of the modern school is to favor by all possible means the progressive development of the child, from the physical, as well as from the intellectual and moral point of view. It is hence proper that the medical inspector of schools should be considered a co-laborer in the general regulation of every establishment placed under his surveillance, and that he should even have a word to say in contributing to reform the programme of studies, the actual aims of which are generally a little too ambitious, gymnastic exercises should alternate with the lessons in a proportion much larger then is reserved for them at present. * * The model school of Brussels has adopted the uniform system for all classes, of having $\frac{3}{4}$ hour of lesson alternate with $\frac{1}{4}$ hour of recreation."

"The surveillance of the physician should moreover extend to certain infirmities which call for special treatment at home and which are a contraindication to gymnastic exercises. So also he should seek to combat the exclusive preponderance of the right side, and to obtain subjects more or less ambidextrous; he will thus succeed in preventing spinal curvature in more than one predisposed child." "He should have a natural sympathy for childhood, and especially for those unfortunate by nature." "If in summer the heat becomes so excessive as to render attendance at school prejudicial to health as well as to a profitable session of the class, he should not hesitate to order an immediate suspension of the exercises." "In the common schools of Brussels the lessons can be suspended when the temperature exceeds 82° Fahr." "In short, with respect to the healthy child, he is to favor by every means in his power, the development, *i. e.*, the physical education of the subject. As to mental training, he should also have the right to make that the object of his investigations. Superannuated methods must be abandonded, by which children are burdened with superfluous details, "their memory fatigued, their attention wearied, and the brain, which avenges this ill-treatment by inertia, strained by an indiscreet abuse. The aim of hygiene and pedagogy, linked in a common interest, should be to lighten the programmes." "Sick children should specially receive the attention of the physician. * * * The school is, in fact a very favorable means for the propogation of infantile maladies and notably of the eruptive fevers (small-pox,

scarlet fever, measles,) as well as of diphtheria and whooping cough. The surveillance in this respect should be incessant, and the physician should give the principal of the school such instruction as will enable him to recognize severe diseases at their start, and thus remove in time all danger of contamination." (Such instruction is now part of their normal school cousre.) "No child that has been affected with a zymotic malady, an eruptive fever, a contagious skin disease, a spasmodic nervous affection, &c., will be readmitted except on presentation of a medical certificate stating that the cure is complete."

"With regard to non-contagious chronic or constitutional diseases, we believe that we do not go too far in saying that the school is destined to be the field where preventive medicine will give the most manifest proofs of its power and win its most glorious victories. If we justly consider the school as a normal agency which should help to depopulate the prisons and galleys, we can equally from our present point of view, regard it as destined to lighten the budget of the hospitals and alms-houses. It is certain that at his home, the child of a laborer, if afflicted with a chronic disease that does not confine him to his bed, will but rarely be the object of that hygienic care indispensable to him; while in the class-room, under men both competent and devoted, he can be submitted to an incessant watching and an assiduous care, of which his cure will be very often the assured reward. To care for the children in school so that they shall not become good-for-nothings in the social workshop and in the ranks of the defenders of their country; so that they shall not contribute later to burden the budget of the official charity already too heavy; such is the goal assigned to the efforts of the devoted men who are sacrificing their time and more remunerative occupation, to secure to the young generation at school new elements of health, that is of riches and social prosperity. "Health is wealth" as Franklin said. Health is the unity that gives value to all the zeros of life, and even education is but a zero, if health does not give the means of using it for the profit of the individual and of society; without health, knowledge is like a precious tree that bears no fruit." "The Board of Health, convinced of the immense utility of preventive medicine, * * * has resolutely undertaken the work of preventing, by the many rescources of therapeutics as far as possible the progressive decay which is menacing a notable part of our future generation. Its attempts to improve the health of feeble children, predisposed to scrofula, consumption &c., have been seconded by the board in charge of the hospitals.' '("Food medicines" were thus supplied to such as needed them, and were indigent at an annual expense of about $250. These were administered under the eye of a teacher, with results as given subsequently.) "In our city the medical service of the schools and of the general health are in the same hands(*i. e.* the Board of Health) and are mutually helpful. They have thus been able to render incalculable service to the public health. No other proof of this is needed beyond this, that it has been duly established, that for six years, no Zymotic disease has reached the extent of an epidemic in Brussels, while other cities large and small but less protected in this respect than the Capital have been cruelly scourged." "Brothers and sisters of children sent home because of the severe contagious diseases (measles, scarlet fever, small-pox, diphtheria, &c.) are not allowed to attend school, for though not themselves infected, they may become vehicles of contagion." The medical inspector "In case of an epidemic, should insist on proper cleanliness in school, and should have the air of the class rooms frequently renewed, for thorough airing is always the best of disinfectants. * * This will be the time to give some advice to children old enough to understand it, with regard to preventive hygiene. This method, well applied will certainly aid in making many useful notions of prophylaxis, penetrate the minds of the parents, and these will be better received, coming by way of the children." (As a result of this it is found that opposition to preventive measures e.g. vaccination &c. is rapidly diminishing in Brussels.) "Having reached the end of our task, may we be permitted to express a hope, the realization of which will contribute largely to the improvement of future generations. * * May we see, in a future not distant, every state of Europe and America give a legal sanction to the appointment of medical inspectors of schools, and all large cities follow in the way so resolutely entered upon by Brussels and by Paris." (J.)

"The physical education of childhood is becoming more and more a subject of grave concern for physicians, for philosophers, and for statesmen. The progress of physiology is now lifting day by day, the veil which conceals the mysteries of life from us, and showing us likewise the causes that are making mankind degenerate in proportion as he becomes civilized. The exigencies of our times are so great that unless we take care the number of those who come out victors from the strife, will be very small indeed. Most parents give themselves very little care about having their children vigorous, handsome and well-built. They are early submitted to toil excessive and beyond their strength. They are taught as soon as possible to read, to reckon, to translate certain phrases of Greek and Latin. They are put under a hot-house *régime*; they are forced just like early fruits, to bear flowers and fruit in haste. Fruits bitter indeed, for soon there is left nothing of the plant that gives them. Health and happiness are pitilessly sacrificed to the need of creating as soon as possible a brilliant and above all a lucrative career for oneself. But as for this steeple-chase, at the goal of which they see fortune and fame, those who reach it are winded, many are dead on the road, worn out by the too great fatigue of an excessive toil; some few only, and these are rare exceptions, reach the goal without being used up. It is proper then, to draw the attention of wise men to the preventive medicine to prescribe in school and especially in the infant and primary schools where the large majority of the nation is forming. * * * The system comprises a number of measures applicable to all the constitutional maladies of children who are born in different conditions of health. Some, born of parents already tainted with an organic disease, have a predisposition to acquire the same disease later. A large number of such enter our schools with the seeds of scrofula or consumption, the evolution of which will come later." But "Heredity is not indispensable to their development. A child placed in unhealthy surroundings, deprived of air and light, can contract the germs which another has received by inheritance. Much more certainly, may a healthy child become anaemic, lymphatic, and even step by step arrive at scrofula or consumption after some years passed in like surroundings. Whether the diseases of which we have been speaking be hereditary or acquired, it is none the less true that they are only the definite expression of a constitutional failure. Any debilitating cause may make it fatal. During his early years man possesses but little resistance. He yields infallibly to the influence of the medium in which he lives." "The child should consequently be the object of the most lively solicitude of the authorities with a view both of preserving and of developing his health. The measures to be taken are of two sorts; hygienic and medicinal. The child should find in the school the air and the light without which he cannot live, and the most favorable temperature that can be given him. The surroundings in which he passes the early years of his life, should be such as to aid in his development, instead of hindering it as is the case with a large number of schools where the most elementary rules of hygiene are sacrificed. The Boards worry usually about many things in the structure of the schools, but never about the children who are to pass a part of their lives there." "It is high time to be done with that absurd system which makes of most schools, pestilential foci, or sombre caverns in which the children become slowly enfeebled and emaciated." "*The School Physician* should carefully see that all the rules of hygiene are faithfully respected. He should begin by registering the name, age, height, weight, circumference of the chest, &c. of the children; should make special observations among which heredity and the condition of the organs (e.g. of vision) should find a place. Nothing will be more easy than class the sick pupils according to the diseases previously noted. There will then be the groups predisposed to consumption, to scrofula, to lymphatic disease, to rickets, to anaemia, which will be the objects of all the solicitude of both teacher and pyhsician, so long as they remain in school." "The following points should receive special attention from both teacher and physician. 1. *The clothing of the children.* The population of our schools, especially in the north is too little or poorly clothed. The clothing does not retain the bodily heat, the skin is submitted to too rapid changes of temperature. The trouble that results therefrom in the functions of the skin, determines attacks of bronchitis or pneumonia which are too often only the starting point of consumption in predisposed subjects." 2. *Cleanliness at school.* Most of our scholars have skins dirty and often covered with grease which interferes with their proper functions. Moreover, scrofulous diseases of the skin are common in the schools, besides, children who are not kept clean, are much more predisposed to all the accidents of the constitutional diseases cited above." "Trial has been made in this line at Brussels. The pupils of School No. 7 have been sent in turn to St. Peter's Hospital where they are properly bathed (the school is in one of the poorest quarters of the city). The experiment is giving the best promises, &c., that with further trial, the results will be marvellous, we are convinced." (B.)

"3. *Their Exercise.* Well regulated exercise is also a preservative against constitutional diseases. . . . Exercises in the open air are specially useful to children. . . . Lymphatic children, and scrofulous ones with torpid temperaments are specially benefitted by these exercises. . . . It is certain that muscular exercises alone, have cured constitutional diseases when all medical means had completely failed. 4. *The hours of study.* Mental work, too prolonged, fatigues the organs of a child ; it is hence very necessary that the arrangement of the hours of study should be as follows :—(1) That the lessons sould not be too long, and should not exceed a normal length, three-quarters of an hour for example. (2) That the instruction should be varied enough to avoid tiring the child's brain. (3) That recesses and physical exercises should alternate with the purely mental occupations. Children predisposed to consumption should do but little brain work. Up to the age of ten or twelve tuberculous manifestations prefer other organs than the lungs. That is why meningitis is so frequent at that age. These children, moreover, show more intellectual precocity, and great care must be taken not to have these too young brains, which infallibly inflame under repeated congestions, work beyond measure. Such are the hygienic means to employ in our schools to prevent the development of constitutional diseases. If these means are known, they are unfortunately too little employed as yet." "For several years, the schools of Brussels, under the direction of the Board of Health, have largely used medical means (as well). Under its influence we have seen feeble children gain flesh, scrofulous affections of skin, eyes, &c., grow rapidly better, and rickets become less. Its use in the schools can not be too much encouraged." (See results in "Preventive Medicine.") These results have been so encouraging as to determine several cities of Belgium to imitate the Board of Health of Brussels. Out of 1163 sick children we have obtained 198 cures, and improved health in 731 (leaving only 234, 20% of the whole, unimproved). "Have not the Boards of Charity every interest in encouraging preventive medicine? It is evident that the number of the sick will diminish if we prevent the evolution of those affections which are the despair of physicians and the ruin of philanthropic institutions."

(B.) The experience of the City of Brussels proves the idea of *medical inspection of schools* to be thoroughly practical. "Probably no measure of public hygiene or education would bring in larger returns for the labor and capital expended." "The mere mention of these facts should stimulate every city of the United States to similar work." (*Med. and Surg. Journal*, Oct. 27, '81.) "This will, I believe, ultimately be brought about." (Dr. E. C. Seguin, N.Y.)

[FORMS OF BLANKS USED IN THEIR SYSTEM OF MEDICAL INSPECTION OF SCHOOLS IN THE CITY OF BRUSSELS.]

STATISTICAL INFORMATION WITH REGARD TO PREMISES.

School No.....

.....Street.

NUMBER OR NAME OF CLASS ROOM.	NO. OF PUPILS IN CLASS-ROOM.	DIMENSIONS OF ROOMS.			DIMENSIONS PER PUPIL.		NO. OF WINDOWS ORIENTATION.				METHODS OF WARMING AND VENTILATION IN EACH ROOM.
		Length (A).	Breadth.	Height.	Sq. feet.	Cubic feet.	N. W.	N. E.	S. W.	S. E.	
											Dimensions of court yards..... " covered " ..... No. of urinals..... " water closets for girls.... " " " boys....

(A) Perpendicular to the wall facing the master's platform.

PREVENTIVE MEDICINE.

NAME OF PUPIL.	AGE.	Height and Weight.	Circumference of Chest.	Date of beginning Treatment.	Physical Examination before Treatment. (*a*) Temperament. (*b*) Constitution. (*c*) Diagnosis.	Date of the Examination at the end of the year.	RESULTS OF THE TREATMENT AND OBSERVATIONS.

Table of the results obtained during the two years, '78-9 and '79-'80. (B.)

DISEASE.	CURED.	BETTER.	No. treat'd
Scrofulous disease..	72	156	286
Lymphatic " ..	34	263	366
Rachitic " ..	9	57	84
Anaemia	77	251	406
Chronic Bronchitis..	6	4	21
Total	198	731	1163

School No.....

Statement of diseases occurring during the month of .....188....

CATEGORY, *A.*—Indispositions at school, accidents, injuries, &c., noted or treated by the Teacher.
" *B.*—Contagious parasitic diseases, or others, causing temporary removal of the pupil by the physician.
" *C.*—Febrile diseases, eruptive, &c., necessitating prolonged treatment at home, and to which the rules of the circular of March 16, 1874, apply.

No. of Order.	Name of Pupil.	Class No.	Residence.	Character of Disease.	Category *A*, *B* or *C*.	DATE of Removal.	DATE of Re-admission.	Special observations of Physician or Teacher with regard to each case, more especially with regard to those in Category *C*.

CITY OF BRUSSELS.

—:o:—

BOARD OF HEALTH
SCHOOL HYGIENE.

School No.....

MONTHLY REPORT ON THE HYGIENIC CONDITION OF THE SCHOOL AND ITS PUPILS.

Month of.....*188*....

DATE OF MEDICAL VISITS. Ordinary, 1st..... 2nd..... 3rd.....
Extraordinary .....

HYGIENE OF PREMISES.

Repair and cleanliness of Class-Rooms :

School Furniture :

Lighting :

Warming and Ventilation :

THERMOMETRIC RECORDS. (WEEKLY AVERAGES.) Maxima, 1st..... 2nd..... 3rd..... 4th.....
Minima .....
Average .....

C ndition of Urinals, Water-closets, &c. :

Condition of Yards, Dressing-rooms, Wash-rooms, Gymnasiums, &c. :

Matters of personal hygiene that have been made the subject of talks or familiar instruction :

Measures of sanitation and hygienic improvement proposed by the physician :

.....
Physician in charge.

BRUSSELS,.....188....

Special observations by the Principal of the School :

No. of Teachers sick during the month..... Total No. days absent.....
" Pupils absent " " ..... " " " .....

Transmitted to the Superintendent of Public Instruction .....
.....188....

.....
Inspector of Health Service.

CITY OF BRUSSELS.

—:o:—

SCHOOL HYGIENE.

School No.....

Room No.... *Occupied by*.....*pupils.*

THERMOMETRIC OBSERVATIONS
Taken during the week, ending.....*188*

DAY OF THE WEEK.	MORNING.		AFTERNOON.		EVENING.		REMARKS.
	8.30	11	2	3.30	8	9.30	
Monday	.....	.....	.....	.....	.....	.....	The school physician made his visit regularly on..... at ..... o'clock.
Tuesday.....	.....	.....	.....	.....	.....	.....	
Wednesday	.....	.....	.....	.....	.....	.....	
Thursday	.....	.....	.....	.....	.....	.....	
Friday	.....	.....	.....	.....	.....	.....	
Average.....	.....	.....	.....	.....	.....	.....	

This record is kept in every class-room and the results are embodied in the Monthly Report. The state of the air in each room, the physician determines by analysis.

The amount of carbonic acid gas is found by the reaction of a standard solution of oxalic acid upon lime or baryta water in contact with a definite quantity of air. The presence of carbonic oxide, the poisonous action of which upon the blood globules is well known, is shown by means of a test paper, prepared with a neutral solution of chloride of palladium.

The physical history of each child is kept on a card as follows :—

FACE OF CARD.

CITY OF BRUSSELS.

No..... School.....
Surname .....
Given names .....
Nationality of parents .....
Language spoken .....
Place of birth .....
Date of birth .....

PHYSICAL EXAMINATION.

Date of observations.	.....	.....	.....
Age.....	.....	.....	.....
Height	.....	.....	.....
Weight	.....	.....	.....
Circumf'nce of head.	.....	.....	.....
Diameters of head ..	.....	.....	.....
Circumf'nce of chest.	.....	.....	.....
Diameters of chest..	.....	.....	.....
Pulmonary capacity.	.....	.....	.....
Force of traction....	.....	.....	.....
.....	.....	.....	.....
Color of hair.....	.....	.....	.....
" eyes.....	.....	.....	.....
Class No.	.....	.....	.....

BACK OF CARD.

MEDICAL OBSERVATIONS.

Hereditary or accidental leisons or infirmities.....
.....
Condition of eyes .....
.....
Condition of teeth .....
.....
Dental operations, done at school.....
.....
Re-vaccinated at school .....
With.... } success. No. of pustules....
Without }
Preventive medicine.....
Begun .....
Ended.....
Results obtained.....
.....
.....
Other observations.....
.....
.....
.....
.....
.....
.....
.....
.....

STATISTICAL TABLE.

The following Table for collecting satistics concerning pupils in the Schools is in use in the higher Schools of Cleveland.

Age?....Habit?.....Color of eyes?.....of hair?.....Nationality of father?....of mother?....Occupation of parents?.....Hereditary diseases? .... Age when entered?.... How long attended?.... Grade?....Home study, No. hrs. daily....Between what hrs.?.... Music, No. hrs. daily?....Reading, do. ?....Housework, do.?.... Fancy work or sewing, do.?....Exercise in the open air, do.?.... How often out evenings?.....What evening mostly?.....How late?.... Usual bedtime?....Time of rising?....

WHEN ENTERED	WHILE AT SCHOOL	DURING VACATION
Appetite	.....	.....
Sleep.....	.....	.....
Headache.....	.....	.....
Backache.....	.....	.....
Nervousness.....	.....	.....
Circulation	.....	.....
Weight.....	.....	.....
Eyes.....	.....	.....
Menses	.....	.....

First menses, at what age?....Character?.....
If eyes are unsound, when first noted?.....
What kind of work most trying to the eyes?.....
At what age, and stage of the course did ill health, if any, first appear?.....
At what season of the year is it most marked?.....
To what causes attributed?.....
Remarks.....
.....
.....

DIRECTIONS

Write plainly. Give *age*, *length of attendance* &c,, in years (y) and months (m). *Habit*, whether short or tall, fleshy or spare. Under *hereditary diseases* inquire with regard to rheumatism, nervous or brain troubles, scrofula, consumption &c. If *appetite* be poor, note what time of the day when most marked, also note if capricious or craving indigestible foods. (cap). Under *headache* note how often; locality, if in the front (fr) 'back part (oc), right side (r. s.), or left side (l. s.) of the head; and if severe (sev) or dull (d). Under *backache* include *sideache*, and note with regard thereto, the same points; viz, frequency, locality and severity. Under *nervousness*, note unnatural irritability (irr), tremor (tr), chorea or St. Vitus dance (cho), hysterical conditions (hys), melancholy (mel) &c. Under *circulation*, note if subject to cold extremities (c. ex.) or attacks of palpitation of the heart (pal). Is there gain or loss in *weight*? Are *eyes* nearsighted (my), or weak (w) or painful (pa) or both. Note interval between *menses*, and their character, whether too profuse (pr), too scanty (sc) or painful (pa); also their character, when first established. Under *causes*, give those to which the parents have been accustomed to attribute ill health. Under *Remarks*, note habits as to proper protection against cold and wet, sitting in damp clothes and the like,also any other points of interest not included under other heads. If the pupil be colored, note that. The letters in brackets,are abbreviations to be used in filling blank.

General Information.

THE CHINESE GIANT.—The largest man in the world is said to be Chang, the Chinese giant, who has been exhibited in New York. He is thirty-three years old, and is the son of a wealthy silk and tea merchant in Pekin. He speaks, reads and writes English, German, French, Italian, and Spanish. He is nine feet high. He was exhibited before the crowned heads of Europe, and in Australia. The Emperor of Russia presented him with a diamond ring, and Queen Victoria a watch which weighs two pounds and a half, and whose chain is nine feet long.

WESTMINSTER ABBEY.—There is but one mechanic buried in Westminster Abbey. His name was Graham, and he was a clockmaker. He made exact astronomy possible by his great improvements in time pieces. He invented the dead-beat escapement and the gridiron compensating pendulum, and he was the first to make clocks that would run for many days without winding. Graham was also a maker of great quadrants and instruments of that sort. His funeral was attended by all the members of the Royal Society.

A DOG.—This story is told of a San Francisco dog named General. His wonderful performances were admired by everybody who knew him. It was General's custom every morning to take a ten-cent-piece wrapped up in a paper to an adjoining butcher's shop, in return for which he obtained a chunk of beef for his breakfast, first carrying it, however, to his master. One day the butcher intentionally failed to give the dog his meat after taking his money. The dog remained there patiently for some time, but finally trotted off. The next day the dog took his paper and ten-cent-piece to another butcher's shop, and positively refused ever after to patronize the man who had cheated him.

WEDDING CUSTOMS.—In Sweden a bride has her pockets filled with bread. It is supposed that every piece she gives the poor on her way to church averts some misfortune. In Norway the bride herself hands round strong drinks, that all the company may drink long life to her, and the wedding feasts last some days. In Liburnia, it is the custom of the bride to retire from the table before the end of the dinner, and to throw over the bridegroom's house a hard cake made of coarse flour; the higher she throws it the happier she will be. In Circassia, there are always set upon the carpet in one of the rooms in the bridegroom's house a vessel of wine and a plate of dough; and the first thing the bride does on entering, is to kick over the wine and scatter the dough with her hands about the room. This is supposed to bring good luck.

WHERE THINGS CAME FROM.—Naturalists assert that cabbages grew wild in Siberia; celery originated in Germany; the potato is a native of Peru; the onion originated in Egypt; tobacco was a native of South America; millet was first discovered in India; the nettle is a native of Europe; the citron of Asia; oats originated in North Africa; rye came from Siberia; parsley was discovered in Sardinia; the parsnip is a native of Arabia; the sunflower was brought from Peru; spinach was cultivated in Arabia; the horse-chesnut is a native of Thibet; the quince came from the Island of Crete; the pear is supposed to be of Egyptian origin; the horse-radish came from the south of Europe.

BROTHER JONATHAN.—The origin of this term is said to have arisen as follows: When General Washington, after being appointed commander of the Revolutionary army, went to Massachusetts to organize it, he found a great want of ammunition and the means of defence. Jonathan Trumbull was then the governor of the State of Connecticut; and the general, placing the greatest reliance on Mr. Trumbull's judgment, remarked: "We must consult Brother Jonathan on the subject." He did so, and the governor supplied many of the wants of the army; and thenceforward—when difficulties arose, and the army was spread over the country—it became a by-phrase, "We must consult Brother Jonathan." And the name has now become a designation for the whole country, as John Bull has for England.

GLUCOSE.—Few persons know to what an extent our sugar, syrups and candies are adulterated with this article. It is now made in immense quantities from corn. First common corn is ground and the starch is extracted by the usual mechanical process. The starch is then boiled with dilute sulphuric-acid for a couple of hours; after this the solution mixed with carbonate of lime to neutralize the acid, a sweet solution remains which by purification and evaporation can be made into syrup; or by further evaporation converted into a solid called grape sugar. The wonderful properties of this "sugar from corn" is that the acid is not destroyed by using, it is neither diminished nor changed, and the amount of sugar exceeds in weight the amount of starch used. Glucose is a cheap substitute for sugar, costing when manufactured in large quantities less than three cents per pound. It is used chiefly as an adulterant, and is found in the cheap syrups and sugars sold by grocers. All the soft candies sold by confectioners are more or less adulterated with it, and even honey is made from it. By making a comb out of parrafine, and filling the cells of the comb with the glucose it is sold for pure white clover honey. Nearly all of the clear white syrups used on the table to put on buckwheat cakes, etc., are largely adulterated with this article. It is not unhealthy to use; it simply is not sweet.

Practical Department.

LESSONS ON CHEMISTRY.

(Continued from last month.)

3. If a glass globe, with proper mountings and a capacity of about a cubic foot, have a cubic inch of water put into it and the air then exhausted by the air pump, the globe will be filled with steam, and all the water will be evaporated when the temperature is brought to the boiling point of water. But the steam does not fill the space continuously to the exclusion of everything else. For we can, by proper arrangement, introduce a cubic inch of alcohol, and we find the globe will hold just as much alcohol vapor as though no steam were present. Again introduce some ether, and we find that the globe holds as much ether-vapor as if the other two vapors were absent. And so we might go on, as far as we know, indefinitely. We can only explain the phenomena of evaporation on the assump-

tion that each substance is an aggregate of particles, with intermolecular spaces (See Section 1), for this is not a case of chemical union and condensation.

4. Take four ounces of the best white castile-soap, or better palm-oil soap. Put the soap in a quart-bottle after cutting it into thin shavings. Fill up the bottle with pure rain water. Shake well till all the soap is dissolved, or as much as will dissolve. If it does not settle clear on standing, pour off some of the liquid and add more water, till finally a clear solution is obtained. Then add to some of this clear solution half its own volume of pure concentrated glycerine. This will produce magnificent bubbles. With a common clay pipe it is easy to blow them three or four inches in diameter. Pour a little of the mixture into a shallow dish and dip into it the open mouth of a common tumbler or a wide mouthed jar. The mouth will be covered with a thin film. Observe the play of colors, The theory of light enables us to measure the thickness of this film. A gary band always appears before the bubble bursts. In the soap films made by Plateau the thickness scarcely reached the millionth of a millimeter (·0394 inch). Sir. Wm. Thompson has shown that it is impossible for such a film to contain more than one layer of molecules. As a parallel case: Rosaniline dye gives a distinct color to 100-million times its weight of alcohol.

5. Faraday prepared goldleaf the thickness of which he estimated at the hundreth part of a wave-length of light or not more than the 5-millionths of a millimeter. A grain of common goldleaf covers 49 sq. inches. A square inch of this may be cut into 100 strips, and each strip into 100 peices all visible to the naked eye. One of these peices weighing one 490-thousandth of a grain, may be attached to glass and have parallel lines ruled across it at the rate of 10,000 or even 224,000 to the inch: So that a grain of gold can by mechanical means alone be divided into 4,900,000,000 or more fragments each of which is still visible by means of the microscope. But when goldleaf is dissolved in nitro-hydrochloric acid the subdivision is carried much farther, and the particles are no longer visible even with the most powerful magnifiers.

6. Three millionths of a millionth of a gramme, or less of sodium may be detected by the appearance of the peculiar yellow line in the spectrum of a substance. If a clear platinum wire which of itself gives no color to the flame, be passed between the fingers, the yellow sodium flame will be seen when the wire is again put into the flame. For sodium exists in the dust suspended in air, and in fact is almost universally present.

7. Make colorless solutions of potassic iodide (KI) and mercuric chloride ($HgCl_2$) commonly called corrosive sublimate. Pour them separately into a small jar of water. They produce bright scarlet mercuric iodide. ($2KI+H_9Cl_2=2KCl+H_9I_2$.)

8. Use plumbic nitrate (nitrate of lead) and KI—bright yellow.

9. Argentic nitrate (nitrate of silver) and KI—pale yellow.

10. To a weak solution of starch add a few drops of chlorine water. Drop into this some solution of KI and a deep blue appears. The Cl unites with the K to produce KCl (potassic chloride), and the I with the starch forms a deep-blue compound.

11. Dissolve by heating a little gallic acid in some strong sulphuric acid. A rich crimson is produced.

12. Add a dilute solution of ferrocyanide of potassium to a very dilute solution of copper nitrate. Red color produced.

13. Add a dilute solution of copper nitrate to a solution of common salt, and heat the mixture. Bright green cupric chloride is formed.

14. Heat together a small quantity of mercury and plenty of flour of sulphur. Bright red vermillion is produced.

15. Take two warm glass jars with the necks ground so as to fit each other closely. Moisten the interior of one jar with a little hydrochloric acid (HCl) and cover the mouth with a piece of glass. Moisten the interior of the other jar with a little ammonia (NH_3) and immediately place it mouth downwards on the glass plate and exactly over the mouth of the lower jar. So long as the glass plate remains the jars will appear empty. Withdraw the glass and the two gases will combine to form solid ammonic chloride (NH_4Cl), or sal ammoniac, which will be seen at first as a white cloud and afterwards as a fine dust in the jars.

16. Grind together equal parts by weight of ammonic chloride and sodic sulphate. Two dry solids form a semi-liquid mass, dissolved in their own water of crystallization.

17. Make a warm and thick solution of white sugar and add slowly in a wide mouthed jar less than half full, some strong sulphuric acid (H_2SO_4). Stir gently, and the clear syrup will be blackened and a semi-solid, porous mass of carbon left in the mortar or jar. The acid withdraws the elements of water from the sugar and leaves the carbon.

18. Grind together two dry solids, acetate of lead, and sulphate of zinc. They form a liquid. (See Exp. 16.)

19. Boil some distilled water in a large test tube about half full. Keep dropping in lumps of calcic chloride until the boiling water will dissolve no more. Have ready a little dilute sulphuric acid in wide mouthed tumbler, wine-glass, or egg-cup. Pour into this the solution of calcic chloride. Two liquids produce a milk white solid, which may be turned out on a piece of dark colored blotting paper. This solid is gypsum, calcic sulphate , or plaster of paris.

20. Powder separately some lime and some sal ammoniac. Stir the dry powders together and a pungent gas (NH_3) is evolved when the mixture is slightly warmed.

21. Mix four parts of dilute sulphuric acid with five parts of the powdered crystals of sodic sulphate. Great cold is produced. The thermometer will fall from 50° Fah. to 3°.

22. Strong hydrochloric acid poured on powdered ice lowers the temperature about 15° Fah.

23. Finely powered fresh crystals of sodic sulphate drenched with strong hydrochloric acid—temperature sinks from 50° F. to 0°.

24. Place a thin slice of yellow phosphorus, which must be cut under water and handled cautiously, upon a bit of sheet iron. When it has become quite dry, sprinkle upon it a few grains of iodine. The vapors of iodine and phosphorus combine and evolve sufficient heat to set fire to the phosphorus.

25. Dissolve a small quantity of red phosphorus in carbon disulphide. Pour out the solution on a filter paper laid over a retort ring. The liquid evaporates in a few minutes leaving the P. in a very minute state of division. The oxygen of the air combines with it and spontaneous combustion takes place.

26. Fill a plain retort entirely full, tube and bulb, with milk of lime. Drop in a dozen slices of yellow phosphorus cut as thin as possible (under water). Put the thumb over the end of the retort and place the end under the surface of lime water in a shallow dish. The retort will remain entirely full. Place the spirit lamp under retort. Some of the lime-water will boil out into the dish, but no air must be allowed to enter the retort, else there is danger of an explosion. After the retort has been heated for some time, a gas, phosphoretted hydrogen (PH_3) will be given off and rise through the water of the dish. As each bubble of gas comes in contact with the air a flash of light is seen, especially in a dark room, the spontaneous combustion of the gas forming beautiful rings of smoke which are luminous in the dark, and revolve vertically round a circular axis and at the same time the whole ring increases in diameter horizontally.

27. Take a shallow glass dish full of water. Throw in a number of small fragments of phosphorus. Surround and cover these with powdered potassic chlorate. Put the end of the funnel down through the water and pour strong sulphuric acid directly on the chlorate and the phosphorus. The chlorate is decomposed; its oxygen seizes the phosphorus, which burns with a distinct flame under water.

To be continued.

PRACTICAL HINTS FOR TEACHING PRIMARY READING BY ANY METHOD.

BY JAMES L. HUGHES.

III.

3. Do not ask Pupils to read Words with whose Meaning they are Unacquainted.—In primary classes the pupils should be required to read no words which they are not in the habit of using. The object of reading at this stage is not to enlarge their vocabulary, nor to add to their store of information; but to enable them to acquire freedom in recognizing the names of words from their printed signs. When taking up a new lesson the attention of the pupils should be directed to the illustrations in it, and they should be encouraged to express in their own language the ideas which are suggested by the pictures. Having thus got the ideas first, the words which represent them may be given. It is always best to print the words used by the pupils on the black-board, and read them, before taking the lesson on the tablet itself. The teacher may print the words and require the pupils to name them, or occasionally she may repeat the words and ask the pupils to direct her in spelling them as she puts them on the board. In this way by skilful questioning the teacher may lead the pupils themselves to use all the new and difficult words in the tablet, and after they have read them from the black-board they will have no difficulty in reading them from the tablet. Remember that in the primary classes the child does not read to acquire knowledge, nor to learn to use new words, but simply to learn to name at sight words that he is in the habit of using in conversation.

4. Do not keep the Class too long at a Single Lesson.—Children were formerly kept droning sleepily at the "alphabet card" longer than they should require to master the first two primers under intelligent teaching. In process of time they were advanced to the "ox" card, and they remained with that interesting quadruped in many cases for weeks, and in all cases until they knew by rote all that was on the card, and could name the words quite as much by their location as by their form. Such a method of "getting through the book" could have only one effect on the mental condition of the children. It is questionable whether any child ever passed through such an ordeal without having its faculties blunted. This process generally changes the vivacious child into the dull school-boy or school-girl in a few months.

It is a grave mistake to expect perfection in reading the first lesson, before proceeding to the next. Perfection must be reached by a gradual process, and may be secured much more readily by practising with new sentences than by merely repeating those already so familiar as to have lost their interest. Without laying down a definite rule specifying the length of time to be devoted to each tablet, it is quite safe to say that every lesson should include some new work, and that if a teacher has to devote more than two or three lessons to the same tablet, he should be convinced that a weakness exists either in himself or his method. It is much better to review regularly the part of the book already read, than to dwell on each lesson until the pupils lose interest in it.

5. Avoid long continued Lessons.—Taking the schools of the entire country into consideration, there is probably no other class in which the pupils display so much inattention and listlessness as in the primary reading class. This is largely due to reasons already given, but it is often caused by the length of time occupied by the lesson. The younger the pupils the shorter the lessons should be. It is wrong to expect them, or try to force young children to concentrate their attention on any subject for more than a few minutes at a time, and as soon as the attention wavers the lesson ceases to be of real value. Short lessons will develop habits of briskness and promptness on the part of the pupils, which will have a beneficial effect on them during their whole lives.

Vary the Plan of Conducting the Reading Lesson as much as Possible.—When, as is too often the case, the reading lesson degenerates into a monotonous routine, it should cause little wonder if the pupils come to it with apathy. There is no way of conducting a reading lesson which is so supremely excellent as to warrant a teacher in using it to the exclusion of all others. There are few subjects in which the method of teaching may be varied to so great an extent as in the case of reading, and yet there are few in teaching which, the teacher is more liable to become mechanical and formal. Among the plans for varying the plan of teaching a reading lesson in primary classes are the following:—

1. The pupils may read simultaneously.
2. They may read individually.
3. They may read from the black-board.
4. They may read from tablets.
5. They may read from primers.
6. They may read backwards.
7. They may read from the tablets as the teacher forms sentences by pointing to words in different parts of the tablet.
8. They may read by paragraphs, by sentences, or by words (If by words they should read in rotation to save time.)
9. They may print on their slates the words named by the teacher. This is not spelling, but testing their knowledge of the powers and sounds of the letters.
10. They may combine the above in various ways in the same lesson.

When reading from the black-board, or using the slates, all the varieties of plans suggested in previous articles may be employed.

NOTES ON HYGIENE.

BY J. A. WISMER, PRINCIPAL OF PARKDALE PUBLIC SCHOOLS.

"Familiar Talks" on the laws of health, for twenty minutes, on Friday afternoons, between the teacher and pupils of the Parkdale Public School.

(Pupils ask questions and take notes in memorandum books, which are preserved).

Introductory.—The term Hygiene is derived from a Greek word meaning health, and properly includes the discussion of that which is injurious to health, as well as that which promotes it. How to secure good health, and how to retain it, are questions of the greatest importance to everyone. Since most boys and girls are naturally healthy, we will consider more particularly the causes which injure and undermine the health, making the person more or less of an invalid during the later periods of life.

Nature has laws which cannot be broken with impunity, in fact we cannot even infringe upon her laws without paying the penalty Thus, if we sit in a draft or with wet feet, for even a very few minutes, nature admonishes us that we have done wrong by giving us a bad cold. All action is followed by a corresponding reaction, and this is true of the mind as well as of the body. Too little or too great action on the part of either the mind or the body is injurious, and the sympathy between mind and body is so great that one cannot suffer without the other being also affected. The object of these "familiar talks," as I call them, is to show us how to secure and preserve—*mens sana in corpore sano*—a sound mind in a sound body. I think that hitherto the education and training of the body have been too much neglected in our schools. Nearly the whole attention of teachers has been devoted to the development of the

intellectual faculties of the mind; the body, therefore, has had to suffer at the expense of the mind, and the many early graves of our brightest and best students cry out against this mind-cramming and body-neglecting system of education. I am an uncompromising opponent of the very general practice of "keeping-in," the school hours are too long as it is. In a great deal of what I shall have to say, of course, I cannot lay claim to originality, as the laws of health and the physiological conditions of a healthy body are immutable, and are well known to all who have made the study of physiology a part of their education. Teachers now-a-days should know something of Law, more of Medicine, and as much about everything as is possible for them to obtain and retain. How are pupils to get clear, lucid, streams of practical instruction, if half of the wells of knowledge in the teacher's mind are partially dried up, or, as is often the case, empty altogether?

First, let us take a look at "the body," or "the house we live in," as it has been aptly termed by an eminent physiologist. It is the most wonderful structure, the grandest piece of mechanism that has ever been designed; a knowledge, therefore, of even a few of its functions, will not only prove interesting, but must lead our minds to acknowledge and revere its great Architect and Designer—God!

The head, or skull rather, is composed of eight bones, which join one another by saw-teeth shaped or ragged edges, called sutures. These are considerably separated in childhood, but become solid in old age. Blows on the head are more apt to produce fracture of the skull, and are, therefore, more dangerous to an old person than to a young one. The face consists of fourteen bones; there are also three small bones in the ear, making a total of twenty-five bones in the head. The covering of the skull is called the scalp, which is filled with little cells, called hair follicles, in which the hair is produced. To keep these hair follicles healthy and enable them to perform their natural functions all that is necessary is attention to cleanliness, the free use of soft water, and a stiff hair-brush. Do not use hair-oil, pomatum, bear's grease, or anything of that kind on the hair. They are liable to become rancid and offensive to the sense of smell.

To be continued.

HOW TO USE TEACHER'S ASSOCIATIONS.

BY J. A. COOPER, PRINCIPAL STATE NORMAL SCHOOL, ERIE, PA.

1st. Take a note-book and pencil with you to the Association.

2nd. Make a careful study of your deficiencies as a Teacher, and write down the supposed remedy for your admitted defects.

3rd. Go early to the Association, and remain until its close.

4th. Be punctual at each and every exercise of the Association.

5th. Give close attention to the exercises.

6th. Make a mental comparison of each speakers matter and method, with your own idea of what should be said, and how it should be said.

7th. Behave as you think the other members should behave.

8th. Behave as you desire your own pupils to behave in school.

9th. At the proper time ask questions upon those topics about which you desire to know more.

10th. Pay special attention to those exercises which relate to your admitted defects.

11th. Be willing to do any thing requested by the instructors, and to aid in making a good Association.

12th. Use your note-book freely and judiciously.

13th. Enter in such questions and topics as you desire to examine more fully.

14th. Seek to learn how to use your opportunities to better advantage.

15th. Strive to learn how to get your pupils to study more.

16th. Endeavour to learn how to get your pupils to study in a better manner.

17th. Talk freely and frankly with other teachers during recesses.

18th. Review the more important exercises during the session.

19th. Write out at length such suggestions as you decide to adopt.

20th. At the close of the Association make and write out an estimate of the value of the whole session to you, and the influence it will have upon your teaching.

21st. Remember that you are personally responsible, to some extent, for a good Association.

22nd. Remember that the amount of good you receive from the Association will depend largely upon yourself.

THE WISE TEACHER AND THE FOOLISH.

The wise teacher shutteth his mouth and placeth a lock thereon.

He expresseth not his opinion on any subject political or otherwise.

The wise teacher dare not say his soul is his own. Yea, verily, for the School Commissioner hath a mortage thereon.

The wise teacher exerteth himself to weariness, trying to make the School Commissioner's thick headed little boy learn something, when the said little boy spoileth for a thrashing.

The wise teacher lieth awake nights, thinking how he may conciliate the above named little boy.

He sayeth unto his father, "Yea, verily thy son is among my most promising pupils. For him have I great hopes." Whereat groaneth ye wise teacher inwardly.

The wise teacher spendeth his substance in riotously treating the School Commissioner to beer, cider, et cetera.

When the end of the year cometh the wise teacher getteth reappointed and can work like a slave for another year to earn twenty-five dollars a month.

But lo! and behold what doeth the foolish teacher?

Ye foolish teacher sayeth boldly that Garfield was the right man; that ward politicians should not be made School Commissioners.

He dareth to vote against ye doughty Alderman, who is the School Commissioner's "stand by."

Yea, verily and thrasheth ye Commissioner's little boy right merrily, till the little boy howleth lustly and promiseth to "knuckle down."

Next cometh irate Commissioner whom he dareth even to tell that he understandeth his own business, and can run his school without interference.

Whereat ye high and mighty Commissioner waxeth wroth, stampeth, and danceth around.

Thereupon ye audacious but foolish teacher telleth him to vacate the premises, and maketh it plain that such is the best policy.

And ye foolish teacher groweth fat in his own independence and wickedness.

There cometh the end of the year, and the foolish teacher is bounced. But he sayeth unto all men, "Care not I for this a *denarius*." And he goeth straightway into the marts of trade and commerce, and worketh up a business that payeth him $500,000 a year.—*Educational Weekly.*

Notes and News.

ONTARIO.

Mr. S. Woods was made the recipient of a handsome present from his late pupils at Stratford on his leaving for Chicago.

We are pleased to note that Mr. W. McBride, H. M. of Richmond Hill High School, has succeeded in securing a nucleus for a "Library of Reference" in connection with the school. Last term they raised $17 by subscription, and obtained $17 more from the High School Board. This term they engaged Mr. J. W. Bengough to give one of his well known humorous sketches, and collected $81 at the door.

The Rev. R. L. Stephenson was elected Chairman of the Perth Board of Education for 1882. At the subsequent meeting F. L. Michell, Esq., Inspector, reported favorably on the results obtained by the teachers in the Public Schools, and also on the considerable increase in the attendance during the past year.

At the meeting of the Separate School Board, Perth, the Rev. J. S. O'Connor was appointed Chairman of the Board for 1882, and the Rev. James Morrison, Secretary.

Members of the Whitby School Board and Mr. Brown, teacher at the Model School there, have expressed an opinion quite favorable to Gage's new series of school-books. The school boards and teachers generally, we see, agree in this opinion. The question is being constantly asked:—Can an option not be given in the matter of readers as is given in the case of other text-books?—*Mail.*

To secure the carrying out of their order, that non-resident pupils desiring admission to the High School, must pay in advance a non-resident fee, the Belleville Board of Education has left the collection of these fees to the Teachers, stating "that any loss the Board may sustain by their non-attention to it, will be deducted from their salaries."

Unquestionably the reason why so much difficulty is experienced in securing Teachers for so many of the County Schools, is the salaries. The miserable pittance offered is not what the head boot-black in an ordinary hotel would accept, and consequently is not even sufficient for the class of Teachers they do get, that is, "permits" and "extensions." Morever on such salaries it is all but impossible for the Teachers to improve themselves or their position. Once located they must in most cases remain, through sheer want of funds. A pleasing contrast to this state of things exists in the County of Wentworth. From statistics in our possession we find that three are paid $550, others $525, and quite a number $500; the average for male teachers being $420. We are unable to say how the salaries of the female teachers compare with these. The farsightedness of those in authority in thus giving a fair remuneration, is securing good teachers who remain, and good results in the schools. Only 24 changes took place in this County at the commencement of this year.

Mr. J. Cousins has been elected Chairman of the London School Board. An application was made by the Public School Teachers for an increase of salary. Recommendations by Dr. Fraser were received and adopted, as also were favorable reports from Mr. Boyle the Inspector, and the Rev. F. L. Checkley, Head Master of the Collegiate Institute.

Mr. J. Diamond is the Secretary-Treasurer of the Belleville School Board.

Mr. Irving had great difficulty in evading his election as Chairman of the Kingston School Board, for 1882. By persistently voting for his opponent, Dr. Fee, however, he succeeded in securing Dr. Fee's election.

No efforts are being spared to make the great play of "Antigone" a splendid success at University College. The Choruses are in full rehearsal, and subscriptions are pouring in to defray expenses. Admission will be one and two dollars each.

Mr. D. Ormston, Chairman of the Whitby School Board, has a method of lubricating the wheels of business and smoothing down those acerbities which so often detract from the dignity of such august bodies as Educational Boards, in a manner we believe peculiar to himself. A supper at his house, to which the members of the board and press are invited, has now become an annual institution. The harmony and mutual good feeling thus generated must have a powerful effect in smoothing away differences, and rendering the intercourse through the year of a more agreeable nature.

The schools in Windsor remained closed till February on account of scarlet fever.

Dr. Agnew, Esq., Inspector of Frontenac County, makes a rather startling comparison between the County and City Schools. He believes that were the two fairly tested, the 4th class of the County Schools would equal or surpass the 5th in the City of Kingston. This rather upsets the pronounced notions of the smartness of city children.

It is proposed to issue debentures to extend over five years to raise from $1000 to $1500, to erect a school on Manitoulin Island.

The Lindsay *Post* appears inconsistent in entering such a strong protest against the School Board for requiring $8000 to render habitable the High School, and then stating that the buildings on the north of the Town Hall are not fit for pig styes.

Jesse Ryerson, B.A., Head Master of the Orillia High School, is a connection of the Rev. Dr. Ryerson.

The Sarnia Board of High and Public School Trustees, at their late meeting unanimously conferred the Chairmanship for the ensuing year, on Mr. C. Saunders. Subsequently with equal unanimity, a resolution to raise the salary of Mr. Brebner, P.S.I., by $200 per annum, was carried. Highly satisfactory reports on both the High and Public Schools, were received and adopted.

Mr. A. D. Griffin, of Port Hope, will succeed Mr. Nugent, at Woodstock. Mr. Griffin holds a First Class Provincial Certificate, and is an undergraduate of the Second Year in Civil Engineering. We wish him every success in his new sphere of labour.

The Minister of Education in his circular of instructions to Inspectors, has directed them to ensure the keeping of books of accounts in conformity with the form prescribed by him, by the Trustees of every rural Section, and the Public School Board of every town. The prescribed book of account is furnished by the trade at 25 cents per copy.

The Stratford *Advertiser* editorially takes the ground that the work of the four Model Schools in the County of Perth could be better done and more economically with one school. The same idea was advanced by members of the County Council in regard to the Lambton Model Schools. The same staff that is required to run one school could do the work in the two schools, and, of course, at a great saving of cost. We trust that it will not be found that this so-called economical policy will result in a great diminution of efficiency, if it be put into practice.

At a meeting of the London East School Board, J. Dearness, Esq., I.P.S., was appointed Inspector of the Schools in London East, for which he is to receive no equivalent in extra salary.

Mr. Hall was unanimously appointed Chairman of the Napanee School Board, at their late meeting.

From the *London Advertiser* we learn that:—The Kingsville Public school is crowded with pupils. The teachers, Mr. A. Ross, Miss Wigle, and Miss Hennis, have charge of sixty pupils each, and it is proposed to lighten their labors by the employment of an additional teacher and the bringing into use of another room, there being an unemployed room in the school building. At present, in order to lighten the labors of the over-burdened teachers, the plan is adopted of dismissing a part of the pupils at the forenoon and afternoon recesses respectively.

At a special meeting of the Stratford High School board on Friday evening, Mr. D. K. Clark, B.A., of the Hamilton Collegiate Institute, was chosen as classical master of the High School in the place of Mr. Samuel Woods, M.A., who resigned the position. Mr. Clark is said to be a good teacher of considerable experience. —*Beacon.*

We congratulate the trustees of S. S. No. 3 in securing the services of Miss Nellie Whyte, of Blandford, as teacher for the ensuing year.—*Woodstock Sentinel and Review.*

We regret to record the fact that A. Nugent, B.A., who has been for three years mathematical master in the High School here, left town this week for Dunnville, in the High School of which town he has secured the position of head teacher. Mr. N. is a graduate of Queen's University, and a most progressive and successful educationalist. During his stay here he has proved himself both competent and energetic; and his departure is deeply regretted by all his pupils and their friends, as well as by others who have known him personally. On Monday morning, previous to his leaving, his class presented him with an address and ten volumes of the poets, beautifully bound, as an expression of their esteem and gratitude. We hope to hear of Mr. Nugent's success in Dunnville, and trust that our High School Board will engage none but a really first-class man to fill his place.—*Woodstock Sentinel and Review.*

Alexander McQueen, Esq., Head Master of London South School, presented his report to the School Trustees at their late meeting, from which, we cull the following particulars:—The School was open 21 days, and the attendance in the different divisions was as follows:—

		NO. ON ROLL.	AV. ATT'S.
4th Div.	Head Master's	63	55
3rd "	Miss Walker's	63	52
2nd "	Miss Westland's	65	51
1st "	Miss Lewis'	102	70

Considering that many were absent from Miss Lewis' department owing to the severity of the weather, the crowded state of this room will be very serious as the weather improves. In view of this the Board are seriously considering means of providing increased accommodation.

We are sorry to find that a great decrease in the attendance has taken place in the London Schools, owing to the prevalence of Scarlet Fever.

Mr. A. Reid, B.A., Gold Medalist, Toronto, has been appointed Mathematical Master of Sarnia High School.

Inspector Huron, through illness, desired the County Council to permit him to engage a substitute at his own expense. This was refused, with the intimation that as he was studying for the law, he ought to resign.

Mr. J. M. Buchan, Principal of U. C. College, also first English Master, receives as salary $2,500 and a fine residence.

Dr. Tassie, till lately Principal of the Galt Collegiate Institute, in rebutting attacks made on him by the Mayor, says: "One word as to my salary. It was nominally $2000, but mark:—I furnished the Board every year with sums varying from $1,000 to $1,400 in payment of it, so that they had merely to furnish the balance. I may here state that during my entire career at Galt I never had a pupil taught by myself plucked at an examination, save one, and then I was associated with another master, and there was a want of capacity besides." "After totally disregarding my advice in everything, and treating me with insolence and insult, assurance can reach no greater height than by charging me with the consequences of its own acts." Nevertheless, I alone brought the Institute at first amid opposition to the front, side by side with institutions heavily endowed with public money, or supported by powerful ecclesiastical corporations.

We are pleased to note that the salary of J. B. Somerst, Esq., Inspector of Schools, Winnipeg, has been increased from $1,000 to $1,500.

The Board of Education, Guelph, lately advertised for a male teacher, holding a Second-Class Certificate of Qualification, at a salary of $550, and received sixty-one applications, some of these holding First-Class Certificates. The Board has opened night classes for young men. On the first evening 55 names were enrolled, and the number has since increased to 83. The subjects taught are Reading, Writing, Grammar and Composition, Arithmetic, and Book-Keeping. Beatty's copy books have been introduced.

OTTAWA COLLEGIATE INSTITUTE.

OTTAWA, 21st February, 1882.

To the Editor of the Canada School Journal:

DEAR SIR,—At a meeting of the Trustees of the Ottawa Collegiate Institute held yesterday, the enclosed resolution was adopted and I was instructed to furnish you with a copy of the same.

Yours truly,

JOHN, PENNOCK, Secretary.

[COPY OF RESOLUTION.]

OTTAWA, 20 February, 1882.

At a meeting of the Board of the Ottawa Collegiate Institute, held this day, the following resolution was unanimously adopted:—

Moved by Mr. Wm. Pennock, seconded by Rev. D. M. Gordon, B.D., "That the Board of Trustees of the Collegiate Institute, Ottawa, has learned of the death of the Rev. Egerton Ryerson, D.D., with deep regret, and that it desires to give expression to its sense of the valuable services rendered to the cause of Education in the Province of Ontario, during the long period of his incumbency as Chief Superintendant—services resulting in the present system, built up with unwearied patience, care, and ability, which while it will leave its impress on the minds of our people for all time, will form an imperishable monument to his memory.

"That the Secretary be instructed to forward copies of the foregoing to the family of the deceased, and to the CANADA SCHOOL JOURNAL, Toronto."

Certified a true copy.

JOHN PENNOCK, Secretary.

NOVA SCOTIA.

The Report of the Superintendent of Education for the year ended October 31st 1881 was laid before both branches of the Legislature on the 16th inst. The Superintendent reports for the year, as compared with the preceding one, and for each term of the year as compared with the corresponding term of its predecessor, an increase in the number of schools in operation, of teachers employed, and pupils employed, and of pupils in attendance. During the Winter Term there were in operation 1763 schools employing 1824 Teachers, and during the Summer Term 1877 schools employing 1938 Teachers. Of the Teachers engaged in the Winter Term, 28 held Academic, 312 First Class, 788 Second Class, and 660 Third Class Licenses. Of those engaged in the Summer Term, 25 held Academic, 294 First Class, 807 Second Class, and 779 Third Class Licenses. For the Winter Term, 746 Teachers were Males and 1042 Females, for the Summer Term, 682 Males and 1223 Females. The number of pupils registered at school for the respective terms was 77468 and 80189; and of different pupils for the entire year, 98148 or 1 in 3·9 of the population according to the census of 1871. The total Government Expenditure for Education for the year is put down as $185,518.80 as compared with $196,217.98. The reduction is chiefly attributable to the lapse of grants to Colleges. It is announced that the Council of Public Instruction has amended the Regulations of the Provincial Normal School of making attendance for a full annual session necessary for professional classification. The Institution is represented as in a highly prosperous condition. The report deals fully with the important question of a course of study for the Public Schools. A course for Common Schools as authorized by the Council of Public Instruction is published and one for High Schools announced as in the near future, The principles underlying the prescribed course are discussed by the Superintendent with considerable fulness. He claims that—"It is based on a rational conception of the scope and attainable ends of a common school system. Its framers were convinced that it would be in the highest degree prejudicial to the educational interests of the Province to attempt to convert its schools, primarily designed to impart fundamental instruction of universal utility, into institutions furnishing special training for special pursuits. Recognizing the public school as existing for the general good, their prime aim was to make it, so far as its curriculum of study is concerned, of the greatest possible value to the great majority of its pupils. They assumed as a fundamental postulate that there is knowledge within the power of the common school to impart which is desirable for all, so desirable in fact that it is a shame and a national misfortune that any of the future citizens of a responsibly governed country should grow up without it; and that it is the primary function of the Common School to impart this knowledge, whose value is entirely independent of the prospective calling of its possessor. For imparting such knowledge the course makes, in my opinion, judicious and ample theoretic provision. To have proceeded otherwise, to have made the interests of some particular pursuit or pursuits the controlling principle, would have been to sacrifice the greater for the less without any rational prospect of securing even the less." The course, however, shows that the framers are in full sympathy with natural methods of instruction. As the Superintendent observes. "They felt bound to weigh most thoughtfully the question whether our Common School instruction might not fairly be asked to do much more than it has been doing to indirectly foster and enoble those industrial callings by which so large a portion of the people of Nova Scotia must continue to earn a livelihood. A careful collation of facts relating to our ordinary school work showed that beyond all question it was to an extreme and injudicious degree bookish or literary, leaving untrained and undeveloped the very faculities which are most active in childhood and which are most directly related to industrial processes and pursuits. The high educative value of the neglected studies was also an element not to be overlooked. The course, therefore, provides that to a large extent certain elements of technical knowledge *which are of general application and utility*, as well as the elements of the physical and natural sciences, shall henceforth have a distinct recognition in the schools of Nova Scotia. It is scarcely necessary to observe that the scientific and technical instruction embraced in the course is not of the formal and elaborate character suited to the lecture room of the University, or the laboratory of the School of Technology. It is the lower preceding the higher, nay, it is the very lowest preceding that which is only a little higher. Yet, it is on these simple Object-Studies faithfully carried out under the directions of the teachers in full sympathy with both youth and nature, that we must depend for the provision of material by operating on which our projected Schools of Technical Instruction can alone be made real blessings to the country. The history of industrial development in other lands teaches lessons which we cannot afford to neglect."

Mr. Harrington's Bill, designed to promote a better attendance at school, did not become law at the recent session of the Legislature. On its second reading being moved, it secured a calm and pretty thorough discussion, and elicited expressions of approval from several members of influence. The Hon. Attorney General while complimenting the introducer of the measure on his philanthropic earnestness, suggested that the further consideration of the

Bill should be deferred till next year, the Bill in the meantime to be printed and circulated through the Province. The main provision of the Bill empowered school sections and municipalities by vote of the rate-payers to make attendance at school compulsory in respect to all children between the ages of 7 and 12, for at least 80 days of the school year.

The death is announced of Charles W. Hiltz Esq., M.D., of Chester, Lunenburg County. The deceased gentlemen was a graduate of Dalhousie College and for several years prior to 1880 filled the position of Inspector of schools for the County of Lunenburg.

Readings and Recitations.

SIMPLEX MUNDITIIS, OR WHAT SHOULD A MAIDEN BE?

A friend in Cambridge (Eng.) sends the following for the CANADA SCHOOL JOURNAL:

"To us who in the present age hear so much about the higher education of women, it cannot be uninteresting to find that the two most popular poets of the times are at one on the question of Woman's sphere,—of Woman's place in the drama of life.

Take the following lines from Tennyson's *Princess*:

> Man for the field, and woman for the hearth;
> Man for the sword, and for the needle she;
> Man with the head, and woman with the heart:
> Man to command and woman to obey:
> All else confusion;

with these lines from Longfellow's *Spanish Student*:

> 'What I most prize in woman
> Is her affections, not her intellect!
> The intellect is finite; but the affections
> Are infinite and cannot be exhausted.'

SIMPLEX MUNDITIIS OR, WHAT SHOULD A MAIDEN BE?

What should a maiden be? Pure as the rill,
Ere it has left its first home in the hill;
Thinking no evil, suspecting no guile,
Cherishing nought that can harm or defile.

What should a maiden be? Honest and true,
Giving to God and to neighbor their due;
Modest and merciful, simple and neat,
Clad in the white robe of innocence sweet.

What should a maiden be? She should be loath
Lightly to give or receive loving troth;
But when her faith is once plighted, till breath
Leave her, her love should be stronger than death.

What should a maiden be? Merry, whene'er
Merriment comes with a natural air;
But let not mirth be an every-day guest,
Quietness sits on a maiden the best.

Like a fair lily, sequestered and meek,
She should be sought for, not others should seek;
But, when the wild winds of trouble arise,
She should be calm and courageous and wise.

What should her words be? Her words should be few
Honest and genuine, tender and true;
Words that o'erflow from a pure heart within,
Guiltless of folly, untainted by sin.

What should her dress be? Not gaudy and vain,
But unaffectedly pretty and plain;
She should remember these few simple words—
"Fine feathers flourish on foolish young birds."

Where should a maiden be? Home is the place
Which a fair maid is most fitted to grace;
There should she turn, like a bird to the nest,
There should a maiden be, blessing and blest.

There should she dwell as the handmaid of God,
And if He bid her 'pass under the rod,'
Let her each murmur repining suppress,
Knowing He chasteneth that He may bless.

But if earth's blessings each day He renew,
Let her give glory where glory is due;
Deem every blessing a gift from above,
Given and designed for a purpose of love.

What will her future be? If she become
Matron and mother, may God bless her home!
God to the matron all blessings will give,
If as God's maiden the young maiden live.

What will her future be? If she should die,
Lightly the earth on her ashes will lie;
Softly her body will sleep neath the sod,
While her pure spirit is safe with her God. "ARCULUS."

THE JOLLY OLD PEDAGOGUE.

'Twas a jolly old pedagogue, long ago,
Tall and slender and shallow and dry;
His form was bent and his gait was slow,
His long thin hair was white as snow,
But a wonderful twinkle shone in his eye;
And he sang every night as he went to bed,
"Let us be happy down here below;
The living must live though the dead be dead,"
Said the jolly old pedagogue, long ago.

He taught his scholars the rule of three,
Writing, and reading, and history, too;
He took the little ones up on his knee—
For a kind old heart in his breast had he,—
And the wants of the littlest child he knew.
"Learn when you're young," he often said,
"There's much to enjoy down here below;
Life for the living and rest for the dead,"
Said the jolly old pedagogue, long ago.

With the stupidest boy he was kind and cool,
Speaking only in gentlest tones:
The rod was hardly known in his school,—
Whipping to him was a barbarous rule,
And too hard work for his poor old bones:
Besides it was painful, he sometimes said,
"We must make life pleasant here below,
The living need charity more than the dead,"
Said the jolly old pedagogue, long ago.

He lived in the house by the hawthorn lane,
With the roses and woodbine over the door;
His room was quiet, and neat, and plain,
But a spirit of comfort here held reign,
And made him forget he was old and poor;
"I need so little," he often said,
"And my friends and relatives here below
Won't litigate over me when I am dead,"
Said the jolly old pedagogue, long ago.

He smoked his pipe in the balmy air
Every evening when the sun went down,
While the soft wind played in his silvery hair,
Leaving the tenderest kisses there,
On the jolly old pedagogue's old crown;
And feeling the kisses, he smiled and said,
"'Twas a glorious world down here below:
Why wait for happiness till we are dead?"
Said the jolly old pedagogue, long ago.

He sat in the door one summer night,
After the sun had sunk in the west,
And the lingering beams of golden light
Made his kindly old face look warm and bright,
While the odorous night wind whispered rest!
Gently, gently he bowed his head,—
There were angels waiting for him I know;
He was sure of his happiness, living or dead,
This jolly old pedagogue, long ago.

—*George Arnold.*

PUBLIC SCHOOLS AND POLITICIANS.

At an examination of a public school on Staten Island, the teacher justly proud of his scholars, addressing the audience, said: "Ladies and gentlemen, to prove that the boys are not crammed for the occasion, I will direct one of them to open the arithmetic at random, and read out the first problem. Then I shall invite a gentleman of the audience to work out the sum on the board, and commit intentional errors, which, you will observe, the boys will instantly detect. John Smith, open the book and read the first question!"

The scholar obeyed and read out—"Add fifteen-sixteenths and nine-elevenths."

The teacher turned to the audience and said: "Now, Supervisor ———, will you step to the black-board and work it out?

The supervisor hesitated, then said, "Certainly," and advanced a step, but paused and asked the teacher, "Is it fair to put to the children so difficult a problem?" "Oh never fear," replied the teacher, "they will be equal to it." "Very well," said the supervisor, "go on."

The boy began the question: "Add fifteen-sixteenths—"

"No, no!" said the supervisor, "I will not be a party to over-taxing children's brains! I have conscientious scruples against it! This forcing system is ruining the rising generation!" and he gave back the chalk and left the room.

"Well, Judge Castleton, will you favour us?" asked the teacher, tendering the chalk. "I would do so with pleasure," replied the judge, "but I have a case coming on in my court room in a minute or two," and he left.

"Assessor Middletown, we must fall back on you," said the teacher, smiling. "Oh," said the assessor, "I pass—I mean, I decline in favor of Collector X." "Well that will do," replied the teacher, "Mr. Collector, will you favor us?"

"I would certainly—that is—of course," replied the collector; "but—ahem!—I think it should be referred to a commit-- Why, bless me! is that the four o'clock boat? I'll never catch it! Good-bye. Some other time!" and he left.

"I know Justice Southfield will not refuse!" said the teacher, and the Justice stepped promptly up to the black-board amidst a round of applause from the audience. The scholar again began to read the sum. "Add fifteen-sixteenths and—"

A dozen hands went up as the judge made the first figures.

"Well, what is it?" asked the teacher.

"He's got the denominator on top of the line!" cried the boys in chorus.

"Very good, boys, very good; I see you are attentive!" said the judge as he rubbed out the figures, turned red, and began again, but was interupted by the class calling out:

"Now he's got the numerator and denominator both under the line!"

"Aha! you young rogues! You're sharp, I see!" said the judge jocosely, and again commenced.

"That aint a fraction at all!" It's one thousand five hundred and sixteen!" was the cry that hailed the judge's new combination of figures.

"Really, Mr. Teacher," ejaculated the judge, "I must compliment you on the wonderful proficiency of your scholars in algebra! I won't tire their patience any more!"

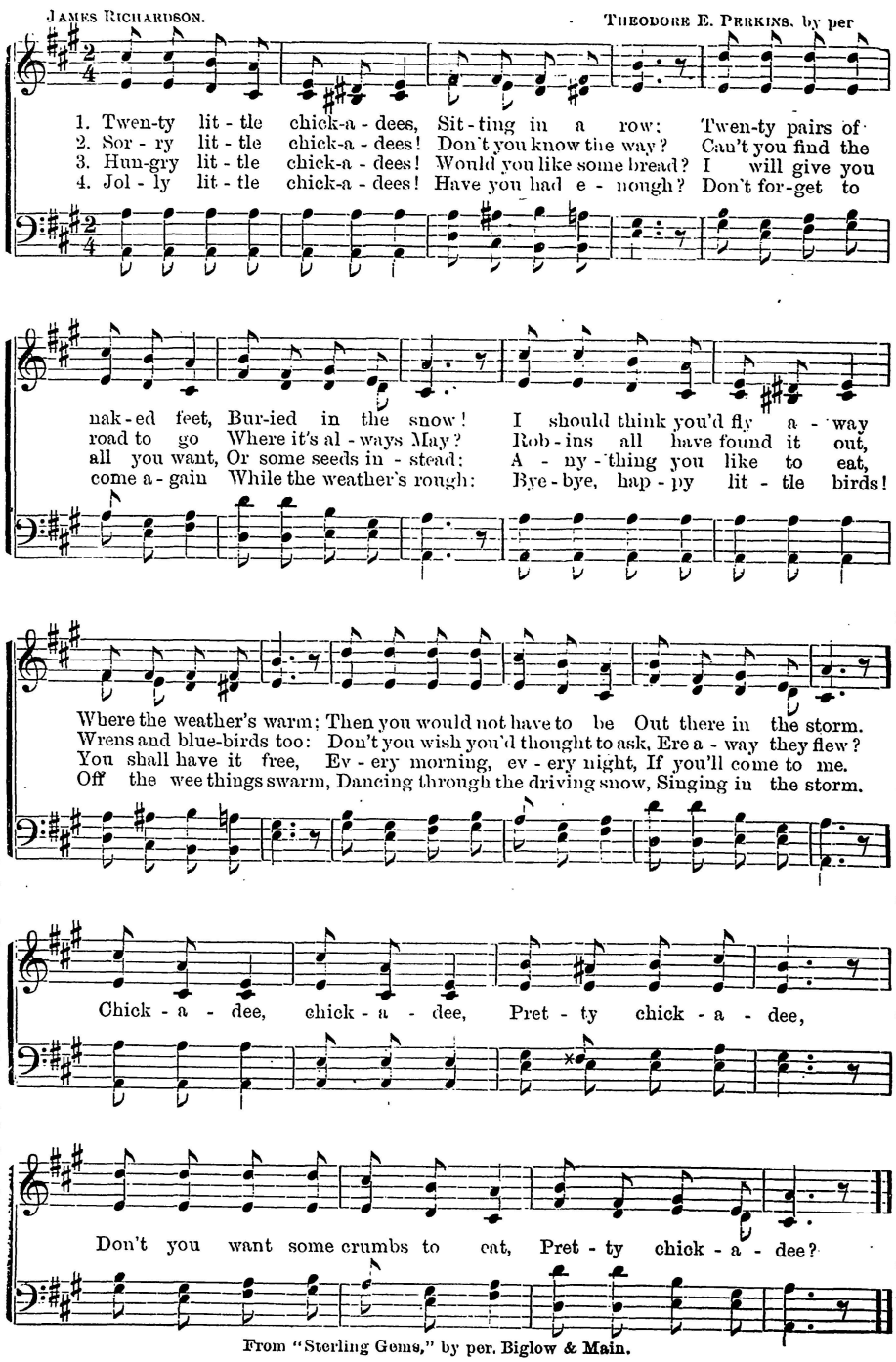
"Oh go on, go on!" said the teacher, and again the judge wrot some figures in an off-hand manner.

"That aint a fraction! It's six thousand one hundred and fifty-one!" yelled the boys!

"Mr. Teacher," said the judge, "it would be ungenerous on my part, and imply an unworthy suspicion as to your efficiency, to put these extraordinarily bright children to additional tests; I would not—I could not—Oh! excuse me! There's Brown! I have important business with him. Sheriff! I want to see you!" and he left.

Some days afterward a boy was brought before Justice Southfield for throwing stones in the street. "John," said the judge sternly, "were you the boy that laughed in school on Monday while I was working that problem?" "Yes, sir!" was the reply. John got thirty days.—*Richmond Co. Gazette.*

Chick-a-dee.



From "Sterling Gems," by per. Biglow & Main.

LITTLE BROOK.

"O stay, little brook!
Why hasten away?
The banks here are green,
The blossoms are gay.
How are you to know
What dangers await
The path you would go?
Take heed ere too late."

"I fear nothing, child,
When duty is clear;
God's hand shapes my course:
Good-bye to you, dear."

J. F. S.

TIME.

Sixty seconds make a minute;
Use them well, you will win it.
Sixty minutes make an hour;
Use them well while in your power.

THE OLD BROWN SCHOOL-HOUSE.

BY REV. DWIGHT WILLIAMS.

In memory's hall hangs the picture,
And years of sad care are between;
It hangs with a beautiful gilding,
And well do I love it, I ween.
It stood on a bleak country corner,
But boyhood's young heart made it warm,
It glowed in the sunshine of summer;
'Twas cheerful in winter and storm.

Oh, gay were the sports of the noontide,
When winter winds frolicked with snow;
We laughed at the freaks of the storm king,
And shouted him on all aglow.
We dashed at his beautiful sculpture,
Regardless of all its array;
We plunged in the feathery snow-drifts,
And sported the winter away.

We sat on the old-fashioned benches,
Beguiled with our pencil and slate;
We thought of the opening future,
And dreamed of our manhood's estate.
Oh, days of my boyhood, I bless ye,
While looking from life's busy prime;
The treasures are lingering with me
I gathered in life's early time.

Oh, still to that bleak country corner
Turns my heart in weariness yet,
Where, leading my gentle young sisters,
With youthful companions I met;
I cast a fond glance o'er the meadow;
The hills just behind it I see;
Away in the charm of the distance,
Old school-house, a blessing on thee!

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

WAETRLOO.—The Waterloo County Teachers' Association met in the Central School, Berlin, on Friday, January 27, at 10 a.m. The president, Mr. S. S. Herner, in the chair. After prayer by Mr. Groh the minutes of last semi-annual meeting were read by the secretary, Mr Chas. A. Winter, and on motion, adopted. Communications were read from Mr. Mowat, Miss Armstrong, and Education Department. On motion of Mr. C. B. Linton, the hearty thanks of this Association were tendered to the Minister of Education for his generous and thoughtful gift of school text-books, sets of educational reports, &c., to this Association. Reports of treasurer, showing balance in hand of $56.89, and of library committee, showing total number of volumes in library to be 364, and recommending that the SCHOOL JOURNAL be supplied to members for 30 cents, and *Educational Monthly* for 45 cents per annum (balance to be paid out of funds of Association), were then read and adopted. Mr. McIntyre then read an able and interesting essay on "The Teachers' Association in the past," in which he gave a brief sketch of its first organization, its ups and downs, sometimes dying a natural death from lack of interest displayed by the teachers, then starting again with renewed vigor to meet, perhaps, the same fate until the present one was organised. After a short discussion between the older members the meeting adjourned until 2 p.m. The first hour in the afternoon was taken up by general business, after which Mr. A. H. Morrison, of Galt, read a masterly and eloquent address on "Competitive Examinations," in which he condemned the system from beginning to end, claiming that its results were unjust alike to teachers and pupils. This provoked a warm discussion in which, although all paid a high tribute to the literary excellence of the essay, yet the essayist's strong condemnation of the system was strongly criticised. A very lengthy and well-prepared essay on "Overwork in Public Schools," by J. E. Bryant, M.A., of Galt, was read, but owing to the lateness of the hour could not be finished or discussed. In the evening the members were entertained to an instructive and interesting debate on the question: "Resolved that it would be of greater advantage to the cause of higher education to have the tuition free," in which the affirmative was sustained by Messrs. Lewis and Brown, and the negative by Messrs. Chapman and W. Linton. During intervals in the debate music, readings, &c., were furnished by Misses Ziegler, Weaver, Hunter, and Bechtel; and Messrs. Groh, Brown, Morrison, Chapman, Ziegler, Moyer, and Winter. *Saturday*, 9.30 a.m.—Opened with the election of officers, as follows: President, J. Suddaby; Vice-President, Wm. Linton; Sec.-Treasurer, Sylvester Moyer; Executive Committee, Misses Ziegler, Scott, and Messrs. Lewis, McIntyre, Ballantye. Mr. F. McKinney introduced the subject of "Geography," showing how he would convey to the minds of his pupils practical ideas of the physical features of the earth by utilizing the resources at hand, viz.: the physical features of the locality, as hills, rivers, ponds, &c., if possible, thus progressing from the known to the unknown. The Committee on "Promotion Examinations" then reported, "That owing to circumstances beyond our influence the uniform Promotion Examinations have to be discontinued for the present," and after some discussion the report was adopted. Mr. Whitmer then illustrated his method of teaching "Reading" (3rd Book), followed by an interesting discussion taken part in by a number of the members present. After the election of Mr. Lewis, of Ayr, as delegate to the Provincial Teachers' Association, Mr. Suddaby dealt with the Subjunctive Mood in an effective manner, and spent some little time in replying to queries by members present. On motion the meeting adjourned until 1.30 p.m. In the afternoon, a motion of condolence to the friends of the late W. S. Brown, and a motion of regret at the retirement of Mr. S. Eby from the profession were passed, and the managing committee's report on programme for next meeting read and adopted. In the absence of Miss Armstrong, her essay on "Physical Culture" was read by the secretary, and a vote of thanks passed to Miss Armstrong for preparing it. After routine business the Association adjourned to meet on the third Friday and Saturday in September.—CHAS. A. WINTER, Sec.-Treasurer.

GLENGARRY.—The semi-annual meeting of the Glengarry Teachers' Association was held in the Brick School House, Alexandria, on Thursday and Friday, February 2nd and 3rd. There was a large attendance of Teachers from all parts of the County, and we trust that substantial benefit was derived from the interchange of ideas between those members who were present. Carefully prepared papers and addresses were given upon the following subjects:—Hygiene, Dr. McDiarmid, I. P. S., President of the Association; "Schoolmaster," Alex. Kennedy, H. M., Model School, Martintown; Proportion, W. D. Johnston, B.A., H. M., H. S., Alexandria; Grammar Text-Books, D. J. Hunter, M. D., of the Alexandria H. S.; History, J. Houston, Principal of Lancaster, P. S., and D. D. McDonell; Object Lessons, Misses Ross and Simpson; Composition, Dr. McDiarmid; Vocal Music, Miss McDonald; Fourth Book Literature, J. C. McCabe; "Trustees, what they are, and what they should be," Mr. F. McCallum. The proceedings were enlivened by readings, given by Mr. Thos. Scales, B. A., Head Master of the Williamstown H. S., and W. D. Johnston, B.A., H. M. Alexandria High School. The following officers were elected for the ensuing year: President and Treasurer, Dr. McDiarmid, I. P. S.; Vice-President, Alex. Kennedy; Secretary, W. D. Johnston; Librarian, A. B. McDonald; Management Committee, D. D. McDonell, F. McCallum, J. C. McCabe, H. D. McDonald, J. D. Houston; Auditors. D. J. Hunter, and Alex. McDonald. After the passing of a resolution authorising the Committee of Management to make arrangements with some prominent educationist for a public lecture, to be delivered at the next meeting, the Association adjourned until September next.

W. D. JOHNSTON, Secretary.

NORFOLK.—The Norfolk Teachers' Association met in the High School building, Simcoe, on the 17th and 18th inst. A splendid programme was prepared, chiefly through the efforts of the Secretary, Mr. Cron. The meeting was one of the most successful ever held, Mr. McLellan contributing much to the success. The enthusiastic reception which was given him, the attention that was paid to all his addresses, show that he still retains the confidence of the teachers of the Co. of Norfolk, and that he has lost none of that well-deserved popularity, notwithstanding the fierce and unjust attacks which have been made upon him by his unscrupulous enemies in the city of Toronto. There is no doubt but that at the present moment there is no more popular man among the teachers of Ontario than Dr. McLellan, and all rejoice that his health has so far recovered as to permit his visiting the Associations again. The meeting was called to order by President Smith, at 10 a.m. After some business, Mr. S. C. Woodsworth took up "Uniform Promotion Examinations." He presented his scheme in a clear manner, and was attentively listened to by all present. After a few remarks from Dr. Woodsworth, Mr. Grant, and Dr. McLellan, S. F. Passmore, B.A., read an essay on the "Study of Classics," giving the history of the language and the connection of our tongue with the Latin. Afternoon Session—Mr. Courtland presented "Illusions of History" in his usual clear style, showing that many of

our most beautiful stories in history are without foundation. Dr. McLellan gave "Grammatical Analysis" in a clear and forcible manner, introducing some new features, which will aid the teacher in this very important but much neglected study. Miss Watts read "Miles Standish's Courtship" in her usual happy style. Dr. McLellan followed with "Reading in School and How to Improve It." Referring to the importance of the subject, and to the necessity of teachers becoming good readers, and that a higher standard will be required from students at the Normal Schools in the future. Evening Session—The large Mechanics Hall was crowded to hear the lecture by Dr. McLellan; all were well pleased with the treat which they received. Rev. Messrs. Croll and Brethuour gave short addresses. A splendid musical treat was given by theBaptist Choir, under Mr. Kitchen. Saturday afternoon—A resolution was passed to introduce Uniform Promotion Examinations, after some discussion on the subject Dr. McLellan explained the German or Kindergarten system of teaching the simple rules of arithmetic, illustrating his remark by the use of diagrams, cubes, &c. If the plan mapped out by the Dr. were followed there would be fewer failures in teaching the subject. Mr. S. C. Woodworth, S. M. S., taught a class of the Fourth Readers a literature lesson. Some parts of the teaching should be adopted by every teacher, such as the frequent use of the black-board; giving a synopsis of each verse in prose and correcting them in a narrative; quoting similar passages from poems gone over before. The whole method was calculated to make the pupil read and examine the lesson attentively. At the close of the morning session a vote of thanks and confidence was given Dr. McLellan. The afternoon session was spent in discussing the Uniform Promotion Examinations and in the election of officers.—S. C. Woodworth, Secretary.

REVIEWS.

Popular Science Monthly, March.—*New York, D. Appleton & Co.*—This magazine is always specially acceptable to teachers. Its pages are full of scientific facts connected with every day life, which can be interwoven with the teaching in all classes of schools, and which will greatly increase the interest of pupils in their studies. Among many excellent articles we name those most directly interesting to teachers. "To eat and to be Eaten," by Chas. Morris, gives many striking illustrations of the fact that one portion of nature supplies food for another; "Longevity of Plants"; "Gulf Stream and Panama Canal"; Recent wonders in Electricity. Two articles will be interesting to Canadians on account of their authorship; "Materialism and Positivism," by Mr. Le Seur of Ottawa; and The Machinery of Elective Government, by Professor Goldwin Smith.

Our Little Ones and The Nursery is acknowledged by all in England, as well as America, to be the very finest magazine for little children published in the world. We advise teachers and parents to subscribe for it. *Boston: The Russell Publishing Co.*

The Century.—*New York: Scribner & Co.* A very excellent portrait of W. D. Howell's, the distinguished American novelist, forms the frontispiece for March A sketch of this author's life and work accompanies it. In travel there are "From Morelia to Mexico City on Horseback," and "A Ramble in Old Philadelphia." In biography, we cannot fail to be interested in "Lord Beaconsfield," "Bryant and Longfellow," and "Leigh Hunt," the latter containing a beautiful portrait. Arthur G. Sedgwick writes a good article on "The Copyright Negociations," a subject of more than usual interest in Canada just now, thanks to Mark Twain. Mrs. Burnett's "Through One Administration," and Mr. Howell's "A Modern Instance," are both worthy of the best attention of lovers of the best light literature written by American authors.

Guides for Science Teaching.—This is No. 12 of the admirable little pamphlet guides issued by the Boston Society of Natural History, and published by Messrs. Ginn and Heath. This relates to Common Minerals and Rocks. These manuals, in the hands of teachers and older scholars, would soon furnish every school with a museum of the natural history of the district in which it is suitable. Two or three of them would form an appropriate padding for a small corner of a teacher's valise during vacation trips.

History of the United States.—This is a brief history profusely illustrated by pictures and maps. It is written in a very interesting style, and is filled with stirring anecdotes calculated to show the bravery and the difficulties of the early settlers in America, and the social customs of the people in the various stages of development. In this way a great amount of information is taught in the best possible way—incidentally. There is less anti-British bombast in it than was formerly found in Un ted States Histories.

Moffatt's Outlines of Models.—This is the best set of Freehand Drawing Copies we have seen. They are carefully selected from the models set at South Kensington; 36 in a pocket. The price is two shillings sterling. *London: Moffatt and Paize.*

Banner Dialogues.—This is a collection of twelve simple dialogues published in Richmond Hill, County of York, at the *Herald* office, by Mrs. R. P. Hopper. They are free from objectionable language.

The Needle-work Hand-book is a most valuable little manual containing patterns, with full directions for making them. It describes by diagram, which teachers might explain by the black board, the various stitches and the different methods of drawing, &c.

A Digest of Infinitives, Participles and Abridgement, and a Complete Outline of Geography and English Grammar. By Alfred A. Crosier. *J. E. Sherrill, Pub., Danville, Ind.; pp. 91.* The pamphlet bearing the above title is certainly all it claims to be. The Infinitive and Participle are very fairly treated. The examples are well chosen and are made to explain very clearly the points under discussion. The outline of Geography and Grammar indicates what should be taught about each of the divisions and subdivisions of these subjects, and also the order in which the several parts ought to be taken up. The outline also presents an excellent method of review, and affords the pupil, especially, an excellent plan of classifying his knowledge and selecting the important parts from the whole, and of expressing these in a concise manner. The work contains many suggestions by which even the most experienced might profit, and is well suited to give young teachers the kind of aid they frequently need.

MAGAZINES.

North American Review, March 1882.—All our readers are aware of the intense interest taken in the trial of the assassin of President Garfield, and of reflections made on the forbearance and indulgence extended to him by the Court. The remark was a common one that such proceedings would not be allowed at the trial of a prisoner in any other country than the United States. The first article in this No. of the *Review* deals with the subject under the title "The conduct of the Guiteau Trial" by Senator George F. Edmonds. The design of the writer is to show that no other course could have been legally adopted than the one pursued and, perhaps, now the feeling is almost universal that it was better to allow the culprit all the liberty that was granted him. "The Progress of the French Re ublic," sketches briefly the events immediately connected with the fall of the Empire in France and the setting up of the system of government at present in force. In "Trial by Jury," Judge E. A. Thomas argues in favor of the abolition of the system and of the institution of a court consisting of one or three judges by whom cases should be tried "The True Lesson of Protestantism" is clearly written and is designed to show that the philosophy of the future will not be materialistic contrary to the cour e it appears to have been taking f late and that religious belief does not concern society in any way but merely the individual, and of course that religious creeds will be abolished. "Law for the Indians" brings out the injustice committed by the States against these original owners of this continent, earnestly pleads that they be granted a status as persons and not merely as *wards*, and compares the treatment accorded them with the course pursued in Canada. "The Fallacies of Homoeopathy" (the word is mis-spelled throughout the article), by Prof. A. B. Palmer, is a strong and honest condemnation of that system of medicine, and concludes by showing that its practitioners and those of what has been called the Allopathic, cannot consult nor work together. The last article by Neal Dow on the "Results of Prohibitory Legislation" shows the condition of the State of Maine before the manufacture of intoxicating liquors was forbidden by law, the improvement that has taken place since, the firm conviction of the people that the law is a right and beneficial one, and the improbability that any change will be made on it except to make it stricter.

The Day of Rest.—The No. for February comes out in a new style. None of the articles call for special notice. "Pages for the Young, at the close, may be interesting to children."

Publishers' Department.

Owing to the Unexpected demand, the January and February numbers of the "School Journal," have been exhausted. Future subscriptions, therefore, must commence with MARCH issue.

CHEAP BOOKS.

The attention of Teachers and others is called to the following list of books which we offer at prices mentioned, for a short period.

Chamber's Encyclopædia, 10 volumes, cloth, last Edinbugh edition, 1881.	$18 00	**Macaulay's History of England, 5 volumes, cloth, neat,**	$3 50
Webster's Unabridged Dictionary, sheep, last ed., 1882,	10 00	**Knight's Popular History of England, 4 vols., cloth, neat,**	4 50
Worcester's " " " " 1881,	9 00	**Dickens' Child's " " 1 vol. " "**	1 00

THE POETS.--**Byron, Burns, Coleridge, Cowper, Aytoun, Dante, Hood, Hemans, Jean Ingelow, Keats, Kirke, Milton, Owen Merediths Lucile, Macaulay, Pope, Proctor, Rogers, Ossian, Shakespeare, Shelly, Thomson, Wordsworth, Young, etc., in cloth binding, neat, plain edges, 75 cents per volume. Gilt edges, $1.00 per volume.**

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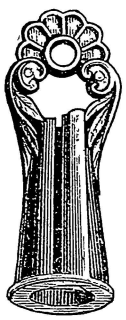

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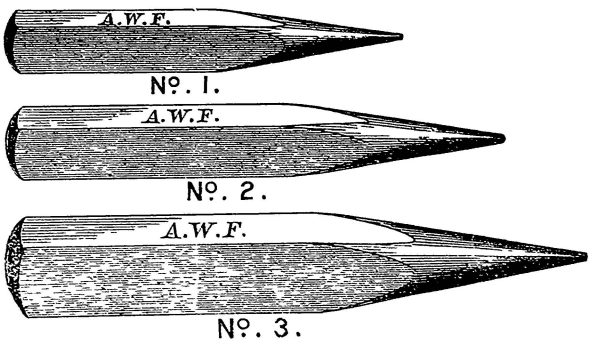

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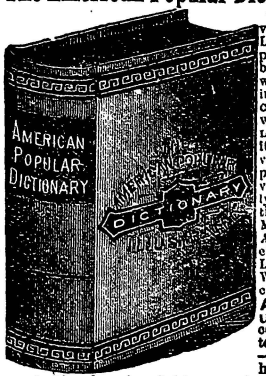

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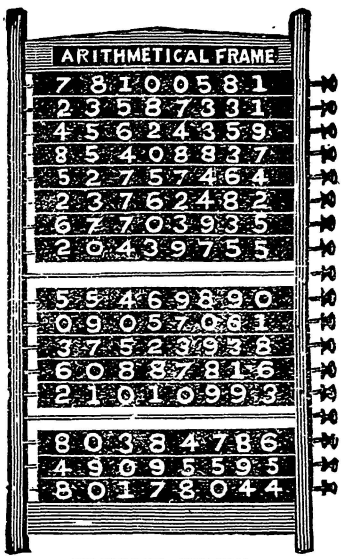

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The Canada School Journal.

Vol. VII. TORONTO, APRIL, 1882. No. 59.

THE KINDERGARTEN.

—Smiles says: "Cultivate the physical exclusively, and you have an athlete or a savage; the moral only, and you have an enthusiast or a maniac; the intellect only, and you have a diseased oddity—it may be a monster. It is only by wisely training all of them together that the complete man can be found."

What can be said of a Public School system which, instead of promoting the three-fold development referred to, attempts to train the intellect alone, and only a part of that? If the physical and moral are left to chance, we might expect that the intellectual would be thoroughly cultivated. Such, however, is not the case. The ideal, the imaginative, the qualitative powers of the mind are utterly neglected in most schools. However perfect our system may be then, efforts for its improvement are more commendable than boasting of its merits, so long as we only aim to develop one half of one of the three elements of our nature at the expense of all the rest. We do not merely neglect the physical and moral, we dwarf them by unhealthful conditions, and by directing all the energies of growth in the system to the mental.

This was the great defect that Frœbel so clearly saw, and which he tried to remove by founding the Kindergarten. The fundamental principles of his system, and many of his practical methods of working out these principles can be introduced into every grade of our Public and High Schools. They would form the best leaven for our entire system. In addition to directing the efforts of all teachers to the tri-uned training of the growing human being, it would be a source of inspiration from which every teacher would obtain nobler ideas of his work, and of the grandness of possibility in connection with each child committed to his care.

The Public School Inspectors at their last annual meeting, agreed that the chief defect in the teachers who graduate from our Normal Schools is a lack of earnestness and enthusiasm. The surest means of remedying this grave defect would be to afford every student who attends the Normal Schools an opportunity to see and practise work in a Kindergarten.

The Ontario Teachers' Association passed a resolution last year unanimously recommending such a course, and similar resolutions have been passed by several county conventions. We hope the Minister of Education may soon take steps to supply the means for giving all teachers the privilege of becoming practically acquainted with the principles of Frœbel's system.

—We have, on several occasions, had to note the success of Mr. J. H. McFaul in several departments of Public School work. It gives us much pleasure to see him appointed as Mr. Gray's successor in St. Catharines. As an Inspector of the schools of a city Mr. McFaul will have the highest opportunity for the exercise of his special talents.

WEARINESS KILLS.

It is neither work nor worry that kills the child in school; it is weariness. It is not the amount of study, but its uninterrupted duration that exhausts the nervous systems of young pupils, and renders them unfit to resist disease when it attacks them. If the wise people who indulge in extravagant denunciation of "over work," would be more practical and do two things: shorten the hours of school attendance, and improve the lighting and ventilation of school-rooms, they would do more to remove the evils resulting to the constitutions of children, than they can ever do in any other way. Unfortunately in the minds of the majority of the rate-payers, at present, there are two objections to these improvements. They are too penurious to pay for proper school-houses, and they object to shorten school hours or lengthen holidays because they think they would not be able to get the worth of their money out of the teachers. They are only able to measure the value of the teacher's services by the length of time he is occupied at work; and the desire to make him work long enough to earn his salary, out-weighs their interest in the health of their children. It is an unfortunate thing for a country, when its legislators act from similar motives. Ignorance and greed are evils in the remotest rural section; they produce their worst effects when they usurp the functions of enlightenment and progress in the halls where they should be held in check.

Teachers have a duty as well as the public in relieving their pupils from the wearying monotony of school work. This they can do, to a certain extent, by the use of good methods of teaching, by varying these methods as much as possible, by giving the pupils their proper share of the work in the process of learning, and by making school-rooms attractive by adorning them with pictures, flowers, &c.

The most perfect system for preventing the bad effects of study, whether in school or at home, is to alternate study and physical exercise. At least five minutes of every hour should be devoted to vigorous and systematic exercise by the pupils, under the direction of the teacher. If done in time to music so much the better. In the best Model School in Europe, fifteen minutes of every hour are given to the development of the physical nature of the pupils. If school hours were shortened and study hours were fairly apportioned to the training of the mental and physical powers by relieving the weariness induced by long-continued study, with recreation and exercise, there would be little danger of evil effects from over-study.

—The law requiring the old School Boards to meet on the day after election of new members to count the votes cast, is rather inelastic, as a meeting on that day may not be possible for want of a quorum. The time should be extended by a saving clause providing for special circumstances.

THE NEW HIGH SCHOOL INSPECTOR.

The lamented death of Mr. Marling left a vacancy difficult to fill. His scholarship, his experience, and his character combined to fit him in an eminent degree for the position which he so ably filled. The choice of the Government has been made, and Mr. J. E. Hodgson, M.A., Principal of Brantford Collegiate Institute, has been appointed an Inspector of High Schools. The duty of selection was a most difficult one. Among the numerous applicants there were other masters of equal ability and longer experience than Mr. Hodgson. There are no doubt some who will object to the appointment on account of the comparative youth of Mr. Hodgson. It is not often possible to give universal satisfaction in making such an appointment. It must be conceded, however, that when a young man has shown clear evidence of the possession of special fitness for any position, his youth is decidedly in his favor. The earlier a man enters upon his life-work the greater are the opportunities to attain a marked efficiency in the performance of his duties.

Mr. Hodgson, was born at Whitby, Ontario, in 1850. He received his training for the University, under his father, Mr. James Hodgson, at present Inspector of Schools for South York. He matriculated in Toronto University in 1869, received the degree of B.A. in 1874, and was awarded the first silver medal in the department of Classics. He took his M.A. in 1880. During the year of 1872, while an undergraduate, he taught in Chatham High School. In 1874, after graduating, he was appointed Classical Master of Cobourg Collegiate Institute, but in the course of a few months he was induced to accept a similar position in the Collegiate Institute at Hamilton. He retained this position till January, 1876, when he was appointed Principal of St. Mary's High School. In 1879 he was selected by the Collegiate Institute Board of Brantford as the successor to Mr. Mills, who had been appointed President of the Agricultural College, at Guelph.

As a teacher, Mr. Hodgson has been singularly successful; five students, directly prepared by him, have won classical scholarships at the matriculation examinations of the different Universities, and a large number of his students have gained first-class honors in Classics, English, French, History and Geography. In his classification and management of two of the most important Collegiate Institutes in the Province he has shown marked ability.

On the whole, Mr. Hodgson's experience has been of the right kind to fit him for the duties of an Inspector. Indeed his whole life has been spent in High Schools, or at College. His father was a successful Grammar School Master, so that from his earliest years, he has been perfectly familiar with the details of the work he will have to inspect.

—Mr. Gray, who was for many years Principal of the Central School in St. Catharines, and afterwards Inspector of Schools in that city, has been appointed Inspector of the County of Lincoln. Mr. Gray is an experienced and successful teacher, and will no doubt prove the right man in the right place.

MATRICULATION IN THE MEDICAL SCHOOLS.

—We expressed the opinion in the February Number of the Journal, that the regulation adopting the Intermediate Examination with Latin as the standard for matriculation by the College of Physicians and Surgeons for Ontario, should be interpreted to mean that the intending Medical Student should take Latin as his optional subject, instead of French, German, or Natural Philosophy, &c., and that those who had already passed the Intermediate without Latin could matriculate in the College by taking Latin only. We are glad to have our interpretation confirmed by Dr. Pyne, Registrar of the College. He sent the following letter bearing on the question to Mr. Clarke:—

Toronto, Feb. 20, 1882.

J. A. Clarke Esq., M.A.,
High School, Smith's Falls, Ont.

Dear Sir,—I send you the C. P. &. S.O. announcement, with the page turned down, stating that the Intermediate certificate with *Latin only*, is all that is required by the Medical Council.

In the copy of curriculum you enclosed, I must state, that the group you mark *B* (being the one on *Latin*) is the only one required to be taken, by intending Medical Students. Groups *A. C. & D.* are not required.

Trusting this will be sufficiently explicit,

I remain, dear Sir,
Yours faithfully,
R. F. Pyne,
Registrar.

THE REVISED EDUCATION CODE OF ENGLAND.

We learn from the London *Times* that the task of revising the English Education Code—a matter which for a year past has excited much discussion throughout educational circles in England—has been definitely terminated. The original code, first drawn up by the celebrated Mr. Lowe (now Lord Sherbrook), though like most educational projects which break in upon stereotyped usages, it encountered severe criticism, has, as the *Times* observes, proved itself fairly well adapted to the circumstances of national education, and has remained practically unaltered to the present day. But the minor changes made necessary by the altered conditions of the country, in time wrought so much complication and confusion in the details of the Code that its very unintelligibility made imperative a systematic revision. To this work of revision the chiefs of the Education Department, Earl Spencer and Mr. Mundella, seem to have addressed themselves with great energy.

On various suggested changes, public opinion was elicited in advance by means of circulars plentifully distributed throughout educational circles. The general result of their labor, the *Times* represents as in the highest degree re-assuring to all true friends of the existing national system of elementary education. The new Code is compared to "a well-fitting boot pressing gently and equally on all sides; special care, indeed, being taken here and there to give ease to a particularly painful corn."

The points of the new Code to which the *Times* directs particular attention, are the following:—*Infant Schools, Subjects of Instruction for Children over Seven Years of Age, Annual Examination, the Attendance Grant, Night Schools, School At-*

tendance, Pupil Teachers, Miscellaneous Regulations. The requisites of a successful school system for young children are justly stated by the *Times* to be "good teachers, bright methods, thoroughness of results, and simple and discriminating inspection." The new Code is described as adapted in a high degree to secure these requisites. We are glad to observe that provision is made even in the case of *Infant Schools* for "simple lessons (not rigidly systematic as to their subjects) on common objects and on the more prominent phenomena of nature and common life—lessons intended to train the observation as well as to store the mind with useful information."

In a future issue we may refer to some of the features of the new Code in detail."

—THE able article in the February number of the JOURNAL, written by Professor Robins, Inspector of Schools in Montreal, was issued by him to his teachers, and first appeared in print in the columns of *The Educational Record*, the official organ of the Education Department, Quebec. We are pleased to note that the Provincial Board of Education, has recommended an increased grant in aid of our lively contemporary.

—The annual meeting of the American Frœbel Society will be held in Detroit, on the 21st of June next. All Canadian Kindergarteners are cordially invited to be present, as well as those interested in extending the work of Frœbel. Those who intend to be present should notify W. N. Hailman, Editor of "New Education and the Kindergarten Messenger," Lafayette Street, Detroit. We hope many Canadians may show their interest in true educational progress by attending the meeting.

—We perceive with much pleasure that Mr. A. L. Parker, B.A., has been appointed a Fellow of St. John's College, Manitoba (see Notes and News). Mr. Parker is at present performing the duties of School Inspector of Parry Sound and Algoma, and on his appointment to that position we took occasion to notice his successful and promising career. We are always pleased to record success, and we hope the new sphere Mr. Parker is about to enter will be to his advantage. The North-West is depriving us of some of our leading educators, but we feel too much interest in the future welfare of the Sister Province to grudge her anything for her benefit.

REV. EGERTON RYERSON, D.D., LL.D.

BY J. GEORGE HODGINS, LL.D.

[The following sketch appeared in the first number of the JOURNAL, and is republished at the request of the General Committee of the Ryerson Memorial Fund. It will doubtless be of greater interest to most of our readers now, than when first published.

We are glad to see that steps have been taken to carry out a suggestion which we made in the last number of the JOURNAL; that some suitable monument to Dr. Ryerson should be erected in the Normal School grounds. The question has been raised whether subscriptions should be limited to trustees, teachers, and pupils, past and present, or open to the entire Province. It matters little. Those who have not been trustees, teachers, or pupils in Ontario at some time during the past thirty-eight years, form but a small portion of its population. There is no way in which a national spirit can be more quickly developed, or a laudable ambition to be good citizens awakened in the breasts of young men, than by doing honor to those whose lives have been successfully devoted to the best interests of their country. Let the response to the appeal for funds for the Ryerson Memorial be universal and prompt.]

"For quite a complete and admirably arranged Exhibition, illustrating the Ontario system of Education and its excellent results: also for the efficiency of an administration which has gained for the Ontario Department a most honourable distinction among Government Educational agencies."—*Award of the American Centennial Commission*, 1876.

Such was the gratifying tribute which a number of eminent American Educationists unconsciously paid to the distinguished founder of the Ontario system of Education, in estimating the results of his labours as illustrated at the Centennial Exhibition.

Although it is difficult to sketch, with freedom, the life and career of distinguished men, while living, yet it can, nevertheless, be done; and there are cases in which it is desirable and fitting that it should be done as far as possible. Such a case is that of the Rev. Dr. Ryerson, whose official career as the founder of our Educational system was so honourably and successfully closed in 1876. The history of Dr. Ryerson's life and labours has yet to be written; but this cannot be done in the lifetime of the present generation. The conflicts of his noted and eventful career have been so many, and have been more or less so severe that it would be a difficult and delicate task just now to describe them, or to discuss the motives and proceedings of the principal actors with the judicial calmness which would give to such a work an impartial character. The materials are, however, abundant; and the writer of this sketch hopes that it may yet be in his power, from his long and intimate knowledge of the facts relating to these events, to be able to perform this filial duty, and to do justice to the noble qualities, statesmanlike views and comprehensive grasp of mind of the distinguished man who, while yet in the vigour of a "green old age" has reared for himself so enduring a monument as the public school system of Ontario, and has enshrined his name in the hearts and affection of his countrymen.

In seeking to account for the great success which has attended the labours of the late Chief Superintendent of Education, in founding our system of public instruction, it is desirable to enquire into the causes of that success. Energy and ability will do much in any great work, and they are essential to its successful accomplishment; but many a man of untiring energy and undoubted ability has failed, because he had overrated his own powers and had lacked tact and judgment in their exercise. Dr. Ryerson may have erred now and then in these particulars; but such errors were the rare exception and not the rule. He wisely laid down certain great principles which he believed to be essential to the success of his labours. These general principles may be thus summarized: 1. That the education of the people should be by themselves, and through their own agency; and that they should, therefore, be consulted in regard to all school legislation. 2. That the aid of the Government should only be invoked where it can most effectually stimulate and assist local effects in this great work. 3. That the property of the country is responsible for, and should contribute towards, the education of the entire youth of the country. 4. That a thorough and systematic inspection of the schools is essential to their vitality and efficiency. These with other general principles, Dr. Ryerson kept steadily in view during the whole thirty-two years of his administration of the school system of Ontario. Their judicious application has contributed largely under the Divine Blessing, to the success of his labours.

The Reverend Egerton Ryerson, (or, as he was baptized, Adolphus

Egerton Ryerson,) was born in the Township of Charlotteville, near Lake Erie, London (afterwards the Talbot) District, (now the County of Norfolk) on the 24th of march, 1803. His father, Colonel Joseph Ryerson, a United Empire Loyalist in the British service at the time of the American Revolution, was born in New Jersey. He first joined as a cadet, and was one of the five hundred and fifty loyal volunteers who went to Charleston, South Carolina. For his good conduct in bearing despatches one hundred and ninety-six miles into the interior, he was promoted to a lieutenancy in the Prince of Wales' Volunteers by Sir Guy Carleton, (Lord Dorchester). Subsequently he was engaged in six battles, and was once wounded. At the peace of 1783 he was exiled, and went to New Brunswick, thence to Canada—he and his family enduring very great hardship in penetratlng into the interior of the then unbroken wilderness of Canada. He settled in Charlotteville, and lived there about seventy years. In the war of 1812, he and three sons again joined the British standard, and acquitted themselves bravely. During his life he held various appointments under the crown. He died, in 1854, at the venerable age of ninety-four years, after having enjoyed his half-pay as a British officer for the unprecedented period of seventy years. Dr. Ryerson was the fourth son of Colonel Ryerson, and was named after two British officers who were intimate friends of his father. His youth was passed in his native country and at its Grammar School he received the rudiments of his early education. With Mr. Law, the Master of the Gore District Grammar School at Hamilton, (at the head of Lake Ontario) he studied his classics. As the Grammar Schools were the only public schools at that time in existence in the country (and they had just then been established) they were, in the rural counties, very elementary in their character, and did not profess to teach more than the mere rudiments of an English education. The young and ardent student, as Doctor Ryerson then was, (and his ardency continued during his life time) not content with the superficial knowledge of grammar which he obtained at school, prevailed upon his father to allow him to go home for six months to attend a grammar class which had been established in the county town on that specific subject.

Doctor Ryerson's habits of study at this time were characteristic of his practice in after life. When at school he had entirely mastered the theory and principles of English Grammar, and had learned all the rules and explanations, and in fact nearly the whole book by rote, but he had no one to explain the theory or to apply the principles of the text-book, flexibility and power of the language. He also at the time prepared and wrote out a digest of Murray's English Grammar, in two volumes, Kame's Elements of Criticism, and Blair's Rhetoric and a Latin Grammar. He was an indefatigable student; and so thoroughly did he ground himself in these and kindred subjects thus early in life and under most adverse circumstances, that in his subsequently active career as a writer and controversalist he ever evinced a power and readiness with his tongue and pen which has often astonished those who were unacquainted with the laborious thoroughness of his previous preparation.

Doctor Ryerson's experience as a teacher did not extend beyond the Grammar School of his native county. At the age of sixteen he was appointed usher, or assistant teacher, to his eldest brother George, (who had received his training at Union College, Schenectady) and who had succeeded his brother-in-law, Mr. Mitchell, on his appointment by the Governor to the judgeship of the county. During the absence of his brother George, the charge of the school devolved upon the youthful usher. Having thus the management of boys and girls who were his companions, and many of them several years his senior, his firmness, tact, and decision were frequently put to the test, but he acquitted himself well, and the experience thus gained was afterwards turned to higher account.

On his twenty-second birthday (24th March, 1825) Dr. Ryerson was ordained deacon in the M. E. Church, by Bishop Hedding. His diary during the first year of his ministerial life shows how devotedly he applied himself to the culture of his mind, although his valise often contained the chief part of his library, and the back of his horse frequently afforded him the only place of study. His first literary effort was put forth in 1826—being the review of Ven. Archdeacon Strachan's sermon on the death of Bishop Mountain, and it at once established his reputation as an able controversialist. In 1828, he again wrote a series of letters criticising Dr. Strachan's famous chart of the various religious bodies. Both series were republished in pamphlet form. In 1829, the *Christian Guardian* was established and he was appointed its joint editor. In 1833 he went to England, and again in 1835. In the latter year he went to obtain a Royal Charter and subscriptions for "U, C. Academy," now Victoria College, Cobourg. He also induced the Home Government to recommend the Upper Canada Legislature to grant $16,000 to the Academy, which it did against the wishes of Sir F. B. Head, the Governor.

In 1840 an Act of Incorporation was obtained from the then recently united Canadian Legislature, erecting Upper Canada Academy into a University under the name and style of the "University of Victoria College, at Cobourg." Doctor Ryerson (who then received the title of D.D. from the Wesleyan University, Middleton,) was unanimously chosen its first President. In 1844, Doctor Ryerson was appointed Superintendent of Education for Upper Canada, by His Excellency the Governor General with an understanding that he would re-lay the entire foundation of the system, and establish it on a wider and more enduring basis. The instructions which he received on his formal appointment were contained in the following words: "His Excellency has no doubt that you will lose no time in devoting yourself to devising such measures as may be necessary to provide proper school books; to establish the most efficient system of instruction; to elevate the character of both teacher and schools: and to encourage every plan and effort to educate and improve the youthful mind of the country; and His Excellency feels assured that your endeavours in matters so important to Western Canada will be alike satisfactory to the public and creditable to yourself." In 1846, he submitted an elaborate report on his projected system of public schools for Upper Canada. In the first part he stated and illustrated its general principles, the concluding fifty pages are devoted to the subject of the machinery of the system under the heads of "Kinds of Schools," "Text-Books," "Control and Inspection," and "Individual Efforts."

Notwithstanding the zeal and ability with which Doctor Ryerson had collected and arranged his facts, analyzed the various systems of education in Europe (chiefly in Germany), and America, and fortified himself with the opinions of all the most eminent educationists in those countries, yet his projected system for this province was fiercely assailed, and was vehemently denounced as embodying in it the very essence of "Prussian despotism." Still with indomitable courage he presevered in his plans and at length succeeded, in 1846, in inducing the legislature to pass a School Act which he had drafted. In 1849 the Provincial administration favourable to Doctor Ryerson's views went out of office, and one unfavorable to him came in. The Hon. Malcolm Cameron, a hostile member of the cabinet, having concocted a singularly crude and cumbrous school bill, aimed to oust Doctor Ryerson from office, it was without examination or discussion passed into a law. Doctor Ryerson at once called the attention of the government (at the head of which was the late lamented Lord Elgin) to the impracticable and unchristian character of the bill, as it had formally excluded the Bible from the schools. The late Honorable Robert

Baldwin, G.B., Attorney General (the Nestor of Canadian politicians, and a truly Christian man) was so convinced of the justness of Doctor Ryerson's views and remonstrance, that he took the unusual course of advising His Excellency to suspend the operation of the new act until Doctor Ryerson could prepare a draft of a bill on the basis of the repealed law, embodying in it, additional to the old bill, the result of his own experience of the working of the system up to that time. The result was that a law passed, in 1850, admirably adapted to the excellent municipal system of Canada, so popular in its character and comprehensive in its provisions and details, that it is still (in a consolidated form) the statute under which the Public Schools of Ontario are maintained.

There was one question, the agitation of which had for many years caused a good deal of disturbance to the school system, but which was set at rest in 1863. This question was the right of Roman Catholics to establish schools of their own, separate from the Public School, but nevertheless aided from the parliamentary grant for education, according to the average attendance of pupils at the schools. The principle of these schools was fully conceded in the first Canadian School Bill which was passed in 1841, the year of the legislative union of the provinces of Upper and Lower Canada. It was subsequently modified in 1843, 1847, and 1850, and (after much bitter agitation) in 1853, 1855, and finally in 1863. In the resolutions for the confederation of the British North American provinces, agreed to at Quebec by representatives from all these provinces, and adopted by the Canadian Legislature in 1865, the rights of the Roman Catholics in regard to these Separate Schools were confirmed as follows: "The local legislature of each province shall have the power to make laws respecting education; saving the rights and privileges which the Protestant or Catholic minority in both Canadas may possess as to their denominational schools, at the time when the confederated union goes into operation."

In 1853, after a good deal of delay and discussion, Doctor Ryerson prevailed upon the legislature to revise the Grammar School Law of the province, which had remained in the statute book accomplishing comparatively little good since 1807-1839. Even then (in 1853) the principle of local taxation for these schools, as applied to the public schools, was not adopted by the legislature in regard to the Grammar Schools. For twelve years longer these schools continued to languish. In 1865, the Grammar School Law was still further improved, and a higher standard of education adopted; but as yet the principle of local taxation for the support of these schools had been but partially concurred in by the legislature and embodied in the amended Act. It provided, however, that a sum equal to one-half of the legislative grant (independent of school fees) should, as a condition of receiving the grant, be raised from "local sources," *i.e.*, by rate, subscription, municipal grant or otherwise.*

In 1850, Dr. Ryerson, while in England, made preliminary arrangements for establishing the Library, Maps, and Apparatus Depository in connection with his department, and, in 1855, he established Meteorological Stations in connection with the County Grammar Schools. In this he was aided by Colonel (now General) Lefroy, R.E., for many years Director of the Provincial Magnetical Observatory at Toronto. Sets of suitable instruments (which were duly tested at the Kew Observatory) were obtained, and shortly afterwards a few of these stations were established. In 1865, the law on the subject having been amended, twelve stations were selected and put into efficient working order. In 1857, he made his third educational tour in Europe, where he procured at Antwerp, Brussels, Florence, Rome, Paris and London, an admirable collection of copies of paintings by the old masters, statues, busts, etc., besides various articles for an Educational Museum in connection with the Department. In 1858-60, Dr. Ryerson took a leading part in the discussion in the newspapers, and before a committee of the legislature, in favour of grants to the various outlying Universities in Ontario. He maintained that "they did the State good service," and that their claims should be substantially recognized as colleges of a central University. He deprecated the multiplication of Universities in the province, which would be the result of a rejection of his scheme. In consideration of his able services in this contest, the University of Victoria College conferred upon him the degree of LL.D. in 1861. In 1860, he induced the Government to submit to the Legislature the draft of a Bill which he had prepared, after consultation at various County School Conventions, for the further development of the system of public instruction. This law very greatly improved the details of the system, and rendered its whole working more effective. In 1867, he made his fourth educational tour in England and the United States. On his return, in 1868, he submitted to the Government a very valuable "special report on the systems and state of popular education in the several countries of Europe and the United States of America, with practical suggestions for the improvement of public instruction in Upper Canada. He also made a separate "Report on Institutions for the Deaf and Dumb and Blind in Various Countries." In 1868-70, he submitted drafts of Bills to the Government for the further improvement of the Public and High Schools. The matter was fully discussed before a large committee of the House of Assembly, and with a good deal of vehement heat in some public journals. In 1871, the Bill was at length carried through the Legislature by the Hon. M. C. Cameron, and has been the means of largely benefiting both classes of schools. The more important features of the Act related to the new system of county inspection and uniform examinations of teachers, besides provisions for greatly improving the High Schools. In 1874, further important amendments were made to the Act relating to Public and High Schools. The Acts thus amended were consolidated and otherwise improved in this year.

For many years Dr. Ryerson had felt that our new political condition required a change in the management of the Education Department. He, therefore, in 1869 and 1872, urged upon the Government the desirability of relieving him of his arduous duties, and of appointing a Minister of Education in his place. Early in 1876 his recommendations were acted upon, and he retired on full salary from the responsible post which for thirty-two years he had so worthily and honourably filled. As to the estimate formed of his valuable labours, I shall quote the opinions of two gentlemen, viz.: Bishop Fraser, of Manchester, England, and the Hon. Adam Crooks, Dr. Ryerson's successor. In concluding his report on our Canadian Schools in 1865, Bishop Fraser says: "Such, in all its main features, is the school system of Upper Canada. A system not perfect, but yet far in advance, as a system of national education, of any thing that we can show at home. It is indeed very remarkable to me that in a country, occupied in the greater part of its area by a sparse, and anything but wealthy, population, whose predominant characteristic is as far possible removed from the spirit of enterprise, an Educational system *so complete in its theory and so capable of adaptation in practice* should have been originally organized, and have been maintained in what, with all allowances, must still be called successful operation for so long a period as twenty-five years. *It shows what can be accomplished by the energy, determination and devotion of a single earnest man.* What national education in England owes to Sir J. K. Shuttleworth, what education in New England owes to Horace Mann, that debt, education in Canada owes to Egerton Ryerson. He has been the object of bitter abuse, of not a little misrepresentation; but he has not swerved from his policy or from his fixed ideas. Through evil report and good report he has resolved, and he has found others to support him in the resolution, that free education shall be placed within the reach of every Canadian parent for every Canadian child."

Before giving the remarks of Mr. Crooks in regard to Dr. Ryerson, I insert the following particulars from the Report to which he refers. They show what a wonderful advance our school system has made under Dr. Ryerson's administration from 1844 to 1875. In this connection I may say that a few of the present generation can realize, not only the low status, but the positively inert condition of the Province in educational matters when the Rev. Dr. Ryerson took charge of the Department, thirty-two years since—in 1844. Men who were fit for no other occupation were considered just the men to teach school; and houses which farmers of the present day would not erect as out-buildings on their farms, were considered as the ideal country school-house.

* In 1876 the principle so long contended for by Dr. Ryerson, was adopted by the Legislature on the recommendation of Hon. Mr. Crooks, Minister of Education, and the County Councils are hereafter to make a grant to the High Schools of a sum equal to the Legislative Grant.

COMPARATIVE STATEMENT OF THE CONDITION OF PUBLIC SCHOOL EDUCATION IN ONTARIO FOR THE YEARS 1844 AND 1875.

Year.	Teachers.			Moneys.		Pupils.			School Houses.				
	Total.	Male.	Female.	Salaries of Teachers.	Total Expenditure.	Total.	Male.	Female.	Total.	Brick.	Stone.	Frame.	Log.
1875	6,018	2,645	3,373	$1,758,100	$2,993,080	474,241	250,430	223,811	4,858	1,232	492	2,117	1,017
1844	2,706	2,060	646	206,856	275,000	96,756	51,210	45,546	2,505	49	84	1,028	1,344
Increase..	3,312	585	2,727	$1,551,254	$2,718,080	377,485	199,220	178,265	2,353	1,183	408	1,089	....
Decrease..	....	....	....	.....	.....	.....	.....	.....	....	....	....	....	327

Mr. Crooks, in concluding his report for 1875, says :—"During that year all these matters were under the control and supervision of the Reverend Dr. Ryerson; and this Report may be considered as a further testimony to the vigor and success of his long administration of thirty-one years; recording, as it does, the operations of the last complete year of his educational labours, and showing a further stage in advance in our educational progress. . . . . My best efforts will be directed to secure and perpetuate the advantages which were gained for our system by the late Chief Superintendent after many controversies and discussions."

A meeting of Inspectors, Normal, High, Public, and Separate School Teachers, and Trustees, was held, March 14, in the Public Hall of the Normal School, on the invitation of J. George Hodgins, Esq., LL.D., Deputy Minister of Education for Ontario, for the purpose of taking steps to secure the erection of some suitable memorial as a tribute of love and esteem for the late Rev. Egerton Ryerson, for nearly thirty-three years Chief Superintendent of Education in Ontario.

The meeting was fairly attended by the teachers of the Normal, Public, Separate, and High Schools of Toronto, and by the Public School Trustees of the city, as well as by several Public School Inspectors from a distance.

Dr. Hodgins was appointed Chairman, and Mr. James L. Hughes Secretary of the meeting.

It was moved by Mr. S. McAllister, seconded by Mr. A. McMurchy, M.A., and carried unanimously, That in the opinion of this meeting a suitable monument should be erected as a tribute to the memory of the late Rev. Egerton Ryerson.

On motion of Mr. J. L. Hughes, seconded by Mr. John Campbell, a committee, consisting of Mr. A. McMurchy, M.A., Rev. Bro. Odo, Mr. David Fotheringham, Mr. A. McAllister, and Mr. Geo. McMurrich, was appointed to nominate a General Committee of Management to take steps to secure the erection of a suitable memorial in accordance with the terms of the previous resolution.

On the retirement of the Nominating Committee, the Chairman read letters from Hon. Adam Crooks, Minister of Education; Alex. Marling, LL.D., Secretary, Education Department; G. W. Ross, M.P.; W. R. Bigg, I.P.S., Leeds; G. D. Platt, I.P.S, P. Edward; E. Scarlett, I.P.S., Northumberland, and Mr. W. J. Gage, expressing their entire sympathy with the object of the meeting, and their willingness to aid in carrying it to a successful issue.

While awaiting the report of the Nominating Committee, an informal discussion took place regarding the nature of the proposed memorial, the best place to erect it, and the method of collecting the funds necessary. Mr. Little, I.P.S., Halton; Dr. Carlyle, Toronto N. S.; Mr. McBrien, I.P.S., Ontario; Mr. James Bain, Toronto P. S. Bd.; Mr. McKinnon, I.P.S., Peel; Rev. Dr. Davies, and Mr. Kirkland, Toronto N. S., and others, took part in the discussion. The general opinion was in favor of a statue in the Normal School grounds.

Mr. McMurchy presented the report of Committee on Nominations, and moved its adoption.

Mr. Bain seconded the resolution, and with very slight amendments, the report was adopted.

The report as amended reads as follows :—

The Committee on Nominations begs to recommend that the following gentlemen constitute the General Committee of Management in connection with Ryerson Memorial :—J. G. Hodgins, LL.D., *Chairman*; Walter S. Lee, Sec.-Treas. Toronto Collegiate Inst. Bd., *Treasurer*; James L. Hughes, I. P. S. Toronto, *Secretary*; Rev. Dr. Ormiston, New York; Rev. Dr. Davies, Principal Toronto N. S.; James A. MacCabe, LL.D., Principal Ottawa N. S.; Daniel Wilson, LL.D., President Toronto University; Prof. Young, Chairman C. C.; His Grace Archbishop Lynch; Rev. Provost Boddy, Trinity College, Toronto; Rev. Principal Caven, Knox College, Toronto; Rev. Dr. Castle, President McMaster Hall (Baptist College), Toronto; Rev. Father Vincent, Superior St. Michael's College, Toronto; Rev. Dr. Nelles, President Victoria University, Cobourg; Rev. G. M. Grant, President Queen's University, Kingston; A. McMurchy, M.A., President Ontario Teachers' Association; E. Galley, Chairman P. S. Bd., Toronto; Vicar General Rooney, Chairman Sep. Sch. Bd., Toronto; Mr. White, Provincial Inspector of Sep. Schools; Rev. Bro. Tobias, Inspector Sep. Schools, Toronto; J. A. McLellan, M.A., Inspector of High Schools; J. S. Carson, I.P.S., Chairman Inspectors' Section Ont. T. A.; D. C. McHenry, M.A., Chairman H. S. Section Ont. T. A.; R. Lewis, Chairman Public School Section Ont. T. A., and the Public School Inspectors of Ontario, *ex-officio*.

It was agreed that five members of the Commitee shall form a quorum; and that the Committee shall have power to add to its number.

At a subsequent meeting the presidents of chartered Universities, and Messrs. McAllister, Doan, and Spence, the Legislative Committee of the Provincial Public School Teachers' Association, were added to the General Committee.

The following circular has been issued by the Committee:

MEMORIAL TO THE LATE REVEREND DOCTOR RYERSON.

APPEAL.

To Trustees, Inspectors, Teachers, and Pupils—past and present—connected with the Public, Separate, and High Schools, and to the other friends of Education, in the Province of Ontario; from the General Committee appointed at Toronto, on the 14th of March, 1882, for the collection of funds with which to erect a Monument, or other Tribute of Esteem and Admiration, to the memory of the late Reverend Dr. Ryerson, founder of the educational system of Ontario.

Although still young, our Province has already been called to mourn the removal of not a few of her gifted sons, who have severally adorned the different walks of public life. In weight of character, wealth of manhood, and width of human sympathy, the late Chief Superintendent of Education stood amongst the foremost and mightiest of them all.

Egerton Ryerson was a man of rare diversity of gifts, of remarkable energy, and of abundant mental resources. It would have been easy for him to have excelled in any one sphere of human greatness, but it was his to stand high in several. He was a many-sided man; richly endowed in various ways. He was a laborious farmer, a zealous student, a successful teacher, an eminent preacher, a prominent ecclesiastic, an influential editor, a forcible writer, a sagacious counsellor, a most efficient principal and professor, but he was chiefly noted as a *great public educationist.*

For a third of a century he was the head and inspiring genius of our school system, establishing, moulding, adapting, controlling it; and this, the main work of his life, will endure, and command in the future, as it has in the past, the admiration of all both at home and abroad. During all these years he was the teacher's true friend, and the ardent well-wisher of the young. His sympathies—tender and true—as helpful as they were healthy, went out to every earnest worker, whether in acquiring or imparting knowledge. The enquiring left his presence directed; the downcast, cheered; the doubtful, confirmed.

Unselfish, generous, disinterested, he devoted himself wholly to his work. How often did his lip quiver and his eye fill when he addressed the gatherings of teachers and pupils upon whom he looked not only with the eye of a patriot, but of a parent,—"Ye are my children all."

We can never forget him; we profoundly mourn our loss; we fondly cherish his memory. Affection, gratitude, a sense of what is due to so eminent a man, impel us to perpetuate that memory in some suitable way, which will render such a noble life an inspiring example to young men now and in the coming days.

In obedience then to one of the purest and loftiest instincts of our nature, let us unite in paying a common tribute of admiration and regard to the memory of him to whom we all sustained a common relationship, and to whom we also, without distinction as to nationality, political preferences, or religious belief, can pay sincere homage, as the founder of our present excellent and comprehensive system of education.

In honouring him we do honour to our common country, and recognize our obligation to pay fitting homage to the great men of our Dominion whose names, with his, are inscribed high upon the roll of Canada's famous sons.

WM. ORMISTON (New York), J. GEORGE HODGINS, } *Committee.*

Signed on behalf of the General Committee,

JAMES L. HUGHES, *Secretary.* J. GEORGE HODGINS, *Chairman.*

Contributions.

EDUCATIVE INSTRUCTION.

BY WILLIAM CROCKET, A.M., PRINCIPAL OF FREDERICTON NORMAL SCHOOL.

Most men look at things in the direction of their own tendencies. They see properties in which they are interested but fail to perceive what does not immediately concern them. The carpenter sees in the tree the boards of his workshop; the lumberer the deal for the market; the botanist the characteristics of its structure, and the poet "a thing of beauty and a joy for ever." In the inanimate rock the builder sees the corner-stone of a noble edifice, the sculptor the full proportions of a finished statue, and the geologist reads the story of the olden times. So it is with the subject of Education. The clergyman sees in it the elevation of the masses, the politician the diminution of crime, the practical man the training for a particular pursuit, the parent the passport to the position he contemplates for his son, and the miserable bachelor nothing but a bill of expense. The subject touches on so many interests, and has so many aspects, that every man is more or less concerned with it, and has got his own notions regarding it. Formed as these generally are, not upon a search into principles, but according to the bias or tendency of the individual, it is not to be wondered at that opinion regarding its subjects, methods, and results should be so conflicting. One man would limit the subject to the three R's, another would embrace whatever subjects are required to fit the pupil for the business of life. One man ignores method, and makes knowledge paramount, another subordinates knowledge to method. One man believes that the diffusion of education will diminish crime, another believes nothing of the kind—"it may give it a different direction, but statistics prove that it does not diminish it." Thus the contest has been going on for many years, and will continue until fundamental principles are generally known and recognized.

What is the grand ideal underlying all this agitation, all this interest, all this desire for the diffusion of education? Is it merely that the pupil may be crammed with so much knowledge? Does the man who would limit the subject of instruction to the three R's ask for simple knowledge? Does he not expect faculty—faculty to read words and sentences distinctly, to handle the pen and form letters, and to manipulate numbers? To aim at this, is to aim at endowing the pupil with a power which he had not before. This, as far as it goes, is capacity acquired through the instrumentality of these subjects. When the Province, at the beginning of the century, granted £10 to each parish to encourage only two of the three R's—Reading and Writing, it intended that the pupils should acquire the power to read and write—that they should be *trained to do* the things specified. When Lord Brougham, after the French Revolution, sounded the note of the education of the people, it is true that the favorite phrase was the diffusion of knowledge among the people—useful knowledge. But there accompanied it the aphorism which is still current—"Knowledge is power." Knowledge is not in itself power. Power is the result of the effort put forth to acquire knowledge. It would then seem that unless the diffusion of education gives faculty, power, capacity, the grand national idea underlying education is not realized.

This underlying idea is the one that has run through the ages, however much in our practice we may depart from it. The old Persian ideal of education was one of capacity, not of acquisition—to ride, to shoot with the bow, and to speak the truth. The accomplishments of the perfect knight were not what he knew, but what he was and could do. Among the Greeks knowledge as mere knowledge did not count much. They aimed not at the acquisition of knowledge but the acquisition of perfect habit. Philosophy was a life, not a system which could be written down on paper. Such was the idea as it grew out of Greek experience. It is true there were then, as there are in our own day, professional crammers—men who defended cram on principle. There were the Sophists, teachers who undertook to furnish their pupils with ready-made talk, which could be produced on any occasion. They could make a speech or write a leader on any side of any question without knowing anything about it. During that brilliant period of Athenian history, about two centuries before the death of Cato, when almost all the citizens were equally well qualified to fill offices or conduct business, these Sophists had little foothold, but as Greece went down in virtue, honesty and patriotism, these crammers came more and more to the front, and the term crammer—which in the good time was held opprobrious, lost its offensive construction and came to mean simply a public teacher. But this was degeneracy and decay. In the uncorrupt time education was the agency by which character was to be formed and capacity acquired. And this is the grand central ideal, in whatever form we may seek to clothe it, that the modern spirit is more and more casting about to realize.

The proper aim of the teacher is to aid in the realization of this conception—the evolving of the pupil's powers so as to fit him for action in any sphere. The powers of the intellect are to be brought out and character formed as far as time and circumstances permit.

In what way can the school aid in the realization of this ideal?

The pupil's powers can only be evolved according to natural law. We may cram him with knowledge, may strain his memory to the utmost capacity, but if the mind does not grow in this way, we cannot thereby produce healthy faculty any more than we can produce a healthy plant except through the laws of its growth. Let us consider for a moment the laws stamped upon the mind by the Creator.

We see that the mind first expands through contact with the external world. By means of the senses impressions are made upon it. The child sees a tree one day and another the next and so on, he comes to form some idea of what a tree is. He is not able to define it, but he knows what it is, he has made an induction of his own. This is a natural law, and so in regard to actions. He sees this one to be beneficial, and another and another, and he soon comes to select that which is beneficial. But this is not all in this simple operation. Every perception is accompanied with some feeling or emotion and some desire. Watch, for instance, how a child acts while looking at the beautiful toy of his play-mate.

We have then three aspects in which objects affect the mind. They form perceptions, give rise to feelings or emotions, and awaken desires. Further, when a sufficient number of perceptions have been thus formed, a higher operation takes place. The mind detects similarities, it unites them into groups or classes, and thus gradually rises from the individual to the general, from the concrete to the abstract. In the case of the feelings the child learns to love what is worthy of being loved, and from doing this in particular cases its affections enlarge until groups are embraced; it then sets its desires on what is really desirable and seeks to attain it. These are the laws of mental growth—perception through the senses, from individual or particular cases to general laws, from the concrete to the abstract—and their violation will be followed by such penalties as are consequent upon the violation of physiological or any other natural law.

In our haste to impart knowledge we are apt to ignore these laws—to give the child his perceptions of an object through verbal description, instead of bringing him into contact with the object itself or representation of it—to give him the abstract by way of rule and definition instead of leading him step by step through concrete examples. In our lessons in natural science, we seek rather to begin with the classification and generalization of naturalists than to bring the pupil into contact with nature itself and lead him up to her laws. In the case of the feelings, it is not uncommon for us to expatiate upon a virtue before the pupil has had sufficient experience to enable him to apprehend what we mean.

The instrument through which the teacher seeks to educate the pupil is instruction. Instruction is the means, education the end. We have not now to discuss what subjects are best suited to accomplish the end. We have settled that question to the best of our judgment. We believed that the two great subjects, *man* and *nature*, meet the wants of the human mind and form the only sure basis for action. Hence we divided our course into the two subjects—*Language* and *Natural History* or *Science*—Language as the expression of man's inner life—Natural Science as the expression of the external world. Whatever aptitude a pupil may afterwards exhibit for the one or the other of the two great lines of study, and whatever provision University Curricula may make to meet the wants of the students, I believe that we are guided by the soundest principles not only in conjoining both subjects in our Course, but in assigning equal value to each, and though in places not remote, it has been sneeringly and flippantly assailed, it was only to bring out its vitality and power.

It is in the mode employed in using the Course just as it is in the proper application of any instrument, that its effectiveness depends. The mode must be consistent with the end in view. The modes may vary and will vary. The particular plan which one man adopts may be ill-suited to another. A mode which is effective in some circumstances, may be fruitless in others. The thinking man will shape his mode to suit himself and his circumstances. It is here that the Teacher ought to have and ought to take the fullest freedom. But principles do not change. They are the eternal lights that guide us amid all the vicissitudes of circumstance and condition. And here it is that the Teacher is restricted. He cannot without frustrating the true aim adopt a mode opposed to the laws of mental growth—he cannot put the abstract before the concrete—the general before the particular.

One fundamental principle in educative instruction arising out of these laws is *clearness and accuracy* of ideas. However few these ideas may be there can be no basis for further progress until they become distinct and accurate, The external world first furnishes the only means to this end, and here the child's first lesson must begin. He is not to be taught geology, zoology, plantology, or any other ology. To attempt this is to attempt impossibilities. It is only a mature mind that can grasp any of these as a science. But these sciences supply endless materials for giving distinct notions of things. But this can only be done when the things themselves are presented. Mere statements about them is of no more value to a child's conceptions than is a description of color to a blind man. How useless, for example, is a lesson on a leaf if the object is not submitted for examination and its properties determined by the pupils themselves? To describe its form, its outline and venation without inspection, not only deprives the child of the means intended for its early culture, but is the sure way to impart false conceptions. Test the result of teaching by mere statement and you will find that the most absurd and incongruous notions are entertained—notions which if ever they become accurate and distinct only do so through experience of the things themselves. On the other hand, if the leaf is submitted and its form fully examined and compared and contrasted with other forms, the impresssons will be vivid and complete. In the same way should lessons be given on the outline and venation. Again, the ordinary phenomena that underlie the operations of a general law should be observed, and observed with sufficient frequency. In this way is a foundation laid for those higher exercises which the growing mind requires. The pupil comes to detect similarities and differences, and groups and classifies accordingly. From repeated observations of individual phenomena he inductively arrives at general laws. The impulse thus imparted to him will carry him on to higher and higher attainments as his mental powers unfold, and though his school days may be short, his training in the external world has been, as far as it goes, complete. In connection with this subject, the London *Lancet* of May has a valuable article which was republished in the St. John *Sun*, in its issue of 22nd ult. "Before the age of seven," it says, "the sole aim of the educator should be to develop by habit the faculties of observation and mind storing, with the closely connected power of recalling mental impressions at will." This is confirmation from high authority not only of the principles I have laid down, but of the soundness of, at least, the first two standards of the Course.

Again, we have the abstract of the external world in the form of Arithmetic and Mathematics. Here also the abstract must be reached through the concrete, the general through the particular; conceptions of numbers must be awakened through the medium of

objects. The word seven is a mere sound to the pupil who cannot count seven objects, and his operations on imperfect ideas of number are mysterious performances. The practice of dealing with 100s and 1000s and larger numbers with a view of acquiring rapidity in the fundamental rules, lays the foundation for that obscurity which frequently hangs over the subject. With respect to the rules in arithmetic, it is notorious that many pupils have for a long time no intelligent conception of them, and some are never able to apply them unless they are told by what rule the question can be solved. The pupils are not stupid, they are bright at many other things. In one case they have acquired clear conceptions which make them eager to advance; in the other, they have not, and they dislike the subject. The dullness in this case arises from reversing the natural process—from dealing with the general before the particular, giving the rule without experience of the facts upon which it is founded—by a sufficient number of practical examples being proposed and the pupil questioned step by step as to the processes which must necessarily be adopted in their resolution, he will make the induction for himself. The rule will then be to him a reality, something he can apply wherever it is applicable.

Geometry has always been regarded as an eminent means of mental discipline. The subject is in itself well fitted to be so, but the mode of commencing it has, until recently, been a serious drawback. Definitions which can only be grasped by those having a knowledge of the subject, or by minds of considerable maturity were first presented and produced what Socrates calls *simulaerd*—semblances of knowledge, phantoms, things to be got rid of as soon as possible, to make room for verities. How much more natural, how much more pleasant, and how much sooner the mind can be fitted for the discipline of the study, if correct geometrical conceptions are first awakened. This mode is now adopted by all intelligent teachers. Illustrations by means of paper, pasteboard or wood, are employed. Solids are made the starting point—the pupil becomes familiar with the cube, cone, and cylinder as realities and not merely as lines on a blackboard. From the solid he takes the surface which is its boundary, and in the surface he sees the line which he comes to know cannot exist anywhere else. He next proceeds to represent his conceptions. He lays his blocks or planes upon paper, passes the pencil round them, and in the figures he sees the plane or line, just as the child sees the dog in the picture. The pupil should subsequently be introduced to constructive geometry—a part of the subject too much neglected by us. He has probably been using his compasses to test the accuracy of his freehand representations. He should now be required to use them in making exact constructions—an exact perpendicular, square, parallelogram, equilateral triangle, &c. His practice in such constructions leads him to see various relations in and between the figures, which prepares him to appreciate and even to anticipate the logical demonstrations. It is only in some such way as this that clear conceptions can be had from the outset, that each step is the natural sequence to the preceding one, that each attempt promises victory,—in short that the subject can become educative. Let a simple question like the following be proposed to two average boys, who have been studying geometry for the same length of time—one trained on the plan described and the other on Euclid's plan; How much larger is a square described upon a line two inches in length than a square described upon a line one inch in length? The Euclid boy has not met with it in his demonstrations, and is unable to determine the relation. The modern boy does not know, but he proceeds to find out. He draws a line one inch in length and describes a square upon it. He draws another line two inches in length and describes a square upon it. He takes the smaller square and finds that it is contained four times in the larger. Which of the two boys will receive most benefit from the logical demonstrations? and let us ask our practical friends, which of the two boys is best prepared to enter upon the practical affairs of life?

Our prescribed text-book on the subject has helped to bring about the present mode of teaching it. The plan of the book is on sound philosophical principles, which, if carried out, will lead the pupil to be inventive, intellectual and practical. The explanations and illustrations that precede the definitions and logical demonstrations should be given in the form of oral lessons by the Teacher, and not got up memoriter from the book. Illustrations and experiments with a view of leading to general principles are always most effective in the hands of the teacher. Even for the pupil to read them over beforehand takes off the bloom of the interest that would otherwise attach to them. For the same reason Hotze's Text-book on Physics, which deals almost exclusively with illustrations and experiments, should not be found in the hands of the pupil at all. The text on geometry is so far as I know the only one which treats the subject in the way I have described. Had this plan been more satisfactorily executed, we should have all looked upon it with much more favor. The language is in many instances obscure, the demonstrations of the propositions are too elliptical to enable the generality of pupils to follow them without assistance, and too little prominence is given to constructive geometry. It has been the means however of putting us on the right track, and we may well endeavor to supply its defects until they are remedied either by the author or by one of our own Teachers.

In connection with what I have said on the subjects of Arithmetic and Geometry, I may be permitted to make the following extract from Mr. Matthew Arnold's Report on the Schools and Universities of the Continent of Europe. In speaking of the schools of France (p. 87), he says: "In general, the respect professed in France for the mathematical and scientific teaching of our schools is as low as that professed for our classical teaching is high. A French schoolmaster who had seen a number of our schools, said to me; 'Your boys do not learn arithmetic, they learn to reckon,' And every one," continues Mr. Arnold, "who has watched a French teacher employing with his pupils the simple processes, and has also watched an English boy's dealing with a rule of three sum, and heard his questions about its 'statements,' which to him is a mere trick, learnt mechanically, not understood and easily misapplied, has a good notion of the differences between the arithmetic of French and English Schools. I must not forget to add, that our geometry teaching was in foreign eyes sufficiently condemned when it was said that we still used Euclid. One of the great sins of Cambridge was her retention of Euclid. I am bound to say that the Germans and the Swiss entirely agree with the French on this point. Euclid, they all say, was quite out of date, and was a thoroughly unfit text-book to teach geometry from, I was told that Euclid's propositions were drawn out with a view to meet all possible cavils, and not with a view of developing geometrical ideas in the most lucid and natural manner. This to me, in my ignorance, sounded plausible; but at any rate, the foreign consensus against the use of Euclid is something striking, and I cannot but call the English reader's attention to it."

The Universities in our own Dominion are now adopting modern methods. Our Provincial University makes Euclid or modern methods optional at its matriculation examination, and Queen's University, Kingston, Ont., treats, as stated in its calendar just issued, geometry in the lecture room by modern methods as well as by Euclid.

We have next the *inner world*. Here we have human experience as expressed in language and history. It is here that the pupil sees what the race has accomplished. It is here that his own spirit can be inspired in the contemplation of human force, human freedom and activity.

Language.—The instrument through which this is accomplished is Language. The pupil who leaves school at an early age can only receive a knowledge and a very imperfect knowledge of his own language. As far as he proceeds, however, it should be to him the clear and accurate expression of the thought. There is a great tendency on the part of pupils to memorize words without connecting them with the ideas they represent or with any ideas. If care is not taken they fall into the habit of reading, of listening to reading, without taking any meaning from it. The lessons which are received through the external world, connecting as they do, or ought to do, words with things, are, in themselves language lessons, and are fitted to promote its acquisition. The pupil who receives such instruction is therefore less likely to misinterpret language, or fall into the habit referred to. But language is connected with thought as well as with things. The connection is a logical one; for language is not only related to the external world, but also to the subjective mind. As language then is the expression of the thoughts, its value as an educative instrument will depend upon the pupils making this connection. It is just here however that we are so liable to be mistaken. There is, as I have said, a strong tendency on the part of children to catch sounds, and to repeat them correctly without associating any intelligent idea with them.

A few words of explanation as to the cause of this may put the matter in a clearer light. The cause is a physiological one, and it is to re-

cent investigations in Nervous Physiology that we are indebted for the explanation. The brain has two distinct functions—an intellectual and a sensational. By the former the succession of ideas is controlled, and the course of conduct determined. This is a distinctly human function. The sensational function, embracing the powers of sensation, ideation, and spontaneous remembrance, is common to the lower animals, as well as to man. This function is an absolute necessity of animal life, and it is accordingly provided for by a tendency for spontaneous development under appropriate stimulants, and blind submission to the promptings of sensation would in all ordinary cases supply the wants, or gratify the passions of man. Unless these promptings are controlled by an exercise of will guided by a prior exercise of judgment, a man is a mere animal. These two functions are not distinct but in some degree antagonistic, through the application of the ordinary law of nutrition to their respective organs. The portions of the brain which are most employed will receive the largest supply of blood, and will be the seats of the most vigorous cell growth, while on the other hand disuse, or restricted use, will be attended with functional impairment or structural derangement. Now the first impressions made upon the consciousness of a child have a strong natural tendency to expend themselves through the sensorium or sensational portion, and usually do so, unless directed higher by the manner in which they are produced. Unless care is taken to arouse the intelligent attention, the impressions made will excite the sensational faculties alone, be variously associated and remembered in their order, without being understood. Hence the facility with which pupils can repeat, and repeat correctly, definitions, rules, in fact any kind of sounds, without knowing anything about them. The following extract from the *Lancet's* article, already referred to, confirms the view I have given, which is substantially that of Dr. Wm. B. Carpenter. To prevent structural derangement: "The means is training as distinguished from mere exercise. This is an important discrimination. It is not work for mere work's sake that is wanted to cultivate the brain of the youth, but a skilful eliciting of cerebral function by education, tending to formulate the energy of brain tissue by leading or constraining it to useful lines of action." Again, "The mere accumulation of what is called knowledge is not brain training, but brain burdening (sensational excitement) and may easily be pushed to the extreme of brain straining, with the result of a complete and ruinous breakdown."

To study language aright we should study the idea with the word, or the thought with the expression. How little idea have many of our pupils of terms much used but often little understood—such as justice, mercy, truth, courage. The meanings of such terms can only be reached through concrete examples. If stories setting forth virtue or vice are told, children will soon come to apprehend what such terms really mean, although they may not be able to define them in set phrases—nor is it desirable that they should do so until their minds have sufficient maturity to grasp the comprehensiveness of a definition. ("Use Art to keep the child ignorant."—*Rousseau.*)

When the pupils are sufficiently advanced to get knowledge from a reading lesson, the thought of every passage should be apprehended before the lesson is concluded. That wrong conceptions may not be formed at the outset the main point or general drift of the lesson should be brought out before it is read. The prominent ideas should be set forth in a form suited to the child's intelligence, and his attention then called to the expression in which the idea is clothed. He is now prepared to read the lesson and to associate the meaning with the language. Each stanza or paragraph should then be taken up as much in detail as is necessary to the full appreciation of the thought in it. This gives the opportunity for the explanation of particular words or phrases and which are always best understood in connection with their application. The practice of selecting the large words here and there and of giving the explanation without reference to the context serves no useful purpose. Each paragraph treated in this way, the lesson may be re-read with a view of bringing out its full meaning. A lesson cannot be concluded in this way at one exercise. Many lessons will require several exercises, but as pupils advance, more and more may be done at one time. The poetical extracts in the Readers should be gone over in the same way before being assigned for recitation. We are then sure that the expression is associated with the thought, and what is more, with proper thought. Recitations of questionable thought or sentiment, designed more for the amusement of spectators than the pupils' benefit, as also those beyond the range of the pupils' sympathies should be avoided.

When the pupil is sufficiently advanced to begin the more formal study of Literature, a plan similar to that adopted with the reading lessons should be pursued. Let the general drift of the piece, be it an essay, a poem, or a play, be apprehended before the more detailed study is taken up. This may be done by directing the pupil to read the subject for himself and afterward questioning upon the leading points until the subject stands out in its broad outlines. This outline should then be filled in such a way that each part will be seen in relation to the other and its relation to the whole. It is here that the study of particular words or expressions will naturally come in, and their peculiar force or aptness be felt and appreciated. It is on some such plan as this that the mind grows with the subject, becomes permeated with the thought, and is fitted mayhap for higher things.

The form of so called Literature which deals only with the personal history of the author, his birth, marriage and death, with the name of his chief works, is of no educative value nor of any value whatever until the pupil's literary taste be somewhat formed. When he comes to feel the influence of an author upon his soul, the personal history may be left to take care of itself.

Another mode in dealing with the subject is to spend the time chiefly in the study of particular words to the exclusion of the thought. Though our texts contain notes that deal almost exclusively with peculiar words, their history and origin, they were intended as aids to the mastery of the thought and not to be dealt with as isolated pedantries. Nor is there much, if any, educative value from the study of the subject by making it merely a means for a further acquaintance with grammatical analysis. The study of a classic presupposes such knowledge of grammatical forms as to render the exercise unnecessary unless in the case of involved constructions. It is true that where the thought is mastered and its expression appreciated, the very best opportunity is afforded of drawing attention to the rationale of Grammar (a very different thing from the grammar of the textbook), but the pattering of declensions and conjugations in connection with a classic is out of place. The same remark applies to the teaching of Latin or any other language. From first to last classical pupils, even at Universities, fritter away too much time in mere grammatical verbalisms, instead of bending their energies to the thought and form of expression. How few students see the beauties of a Virgil, or have fathomed the thought of an Æschylus in his Prometheus or in any of his Ovesteia.

History.—This subject is also a human study. It is the study by which we learn what are the workings of man's nature as carried out in action. And here it is only necessary to add one word as to the plan to be pursued. As in other subjects, we must begin with the particulars. It is in the particular actions of men as observed by the pupil himself, or as related by others, that he first forms his moral standard. The first stage of the subject should therefore be biography, and given orally. Lively conversational sketches of great men cannot fail to impress and interest the young, and if we once get the child interested in a great man we have taught him some history, and what is more, we have given him a valuable acquaintance for life. During this stage also interesting events may be pictured out and actual pictures used if possible. History should be to the child a series of pictures that may live in the imagination and not a heap of facts to rot in the memory. Never mind the sequence of events at this stage, nor the country to which they relate, provided they are fitted to arouse the imagination and appeal to the natural enthusiasm for everything that is great and noble in human nature.

In the formal study of the subject the event should be made to subserve as far as possible some great purpose—the value of industry, of toleration, of earnest conviction, of perseverance, of freedom, etc. On some such plan as this, it is possible to make the study of history produce profound moral effects on the pupil.

The root idea of the plan I have sketched to make the course of instruction educative, and thus secure to the country the benefits which education should confer, lies in giving clear and accurate perceptions from the outset. With clearness and accuracy of ideas there arises a consciousness of power which urges the pupil onward. No external force is needed either in the shape of punishment or prize. The mind's own inherent energies are stimulated to go forth in search of the elements of its growth. These it takes in and works into itself, and the knowledge instead of incrusting the mind and causing a collapse or breakdown becomes the expanding and energizing power of the soul, making the character stronger, nobler, more individualized, more fruitful in all that is good and beautiful. It is in this way, and this alone, that we can ever hope to realize the grand central ideal of education, and hereby make our pupils, our people, not "dumb driven cattle," "but heroes in the strife"

THE STUDY OF BOTANY.

BY MRS. CHANDLER, WINDSOR, NOVA SCOTIA.

(Read before the Teachers' Association of No 5 Disirict, N. S. and published by the request of the members.)

We understand the aim of true education to be the cultivation and expansion of the powers which God has given us. To cultivate anything, be it a plant, an animal, a mind, is to make it grow. Growth depends not only upon the natural soil, but upon the kind of food and manner of feeding. It is the aim, therefore, of the true teacher to choose such subjects as are best calculated to strengthen the minds of the children with whom he is associated day by day, and present them in such a manner that all their mental powers being gradually unfolded they may go forth from the schoolroom not dwarfs, but with vigorous and well-formed intellects, so that they may be not only morally and physically but mentally better able to take the positions in life which they are destined to fill.

Since a large part, and perhaps the largest part of the knowledge of the child is derived from its power of observation, we find the perceptive faculties the earliest avenue open to the mind. The child is ever on the alert with watchful eye, quick ear, ready hands, and willing feet. As some one has expressed it: "Finite yet infinite to apprehend. Nothing too small, nothing too great to be accounted for." We ask, then, how can this part of the child's nature be better developed than by bringing it into contact with natural objects; we cannot say after all bringing into contact, for this is already done, but by arousing his curiosity about the objects he sees around him. Every child is born with a certain amount of curiosity. So also a love for the beautiful is implanted in every human breast. This love may be developed and form one link between the visible and the invisible, between man and God, in whose image he was created. We know of no study which cultivates this love, or one which gives a wider range for the powers of observation, or which is more interesting to the child, than that of plants in their forms and habits. Where also can we find greater variety of color, or greater perfection of form than in the plant-world, even among the most common weeds? Hence the study of flowers has a tendency to awaken a conception of design, and through this an idea of the great Designer. For we naturally, upon looking at a wonderful piece of art, whether it be a picture, a statue, or whatever it may be, ask 'Who is the author?' Who could study nature in her variety and unity and not be led to contemplate the great Author? We cannot but believe that any study which has a tendency to direct the mind to the Creator is both elevating and profitable, and must form the noblest growth in man's nature. Tennyson must have had some such idea of the study of flowers when he wrote:—

"Flower in the crannied wall,
I pluck you out of the crannies,
Hold you here in my hand,
Little flower, root and all,
And if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

The introduction of this or any such study relieves the monotony of ordinary school-work, and gives a new impulse to many a child who might otherwise have a distaste for the usual work of the schoolroom. It also gives greater power of expression by helping to trace resemblance and difference.

Some, however, may object to this kind of work being introduced into our common schools, particularly on the ground that it is not necessary for the fitting of children for the various trades and occupations. But the child is not to be educated simply because he is to become a farmer, a shoemaker or shipbuilder, but because he is to become a man. A trade is not the great end of his being, for his mind cannot be shut up in it, his force of thought cannot be exhausted on it. How often when the arm of the laborer is employed does his mind escape to the ends of the earth. No one can assert that a man will cultivate his farm, or perform any labor less successfully for having some knowledge of nature. Heaven's richest blessings are bestowed on all alike. The sun shines on the rich as well as on the poor; the air we breathe is for all. Nature's bounties are all free, and with these gifts minds are given to all capable of enjoying them.

"Defeat and scorn and shame
Be his who strives to bind
The restless, leaping waves of thought,
The free-tide of the mind."

In the past some few have stood on the pedestals of rank, others on the pedestals of wealth, and have viewed with a self-satisfied air from their lofty eminence the toiling masses below. But all are gradually learning that it is neither rank nor wealth that raises a man above his fellows. It is not these outward things, for they all find one common level, but it is the character which gives the man his true position. Hence the great law of human equality is being recognized, and the day will come when a man will be valued not so much for his rank and wealth as for the quality of mind he possesses. For an illustration of the power of mind in the masses we have only to look at Russia, shaken to her very foundation. Despotism may attempt the destruction of that power, but the history of Europe in the past proves it unequal to the task. The only thing which can elevate and give it a right tone is a universal education, which will not unfit for labor, but which will fit men to labor more intelligently.

The study of plants may be commenced with children as soon as they enter school, for when a child is able to distinguish *a* from *b* in the alphabet, it is certainly able to distinguish the root from the stem and leaf of the plant. There is no need of giving scientific terms, on the contrary this would confuse the child, and render what would otherwise be a delight an irksome duty. Thus, to tell a child five years old that a bell-shaped flower is campanulate, or that a butterfly-shaped flower is papilionaceous, or to call a pod a legume would be simply absurd. Give everything the simplest name possible. The parts of the plant may be learned first by talking with the children about what they can see, in the same manner as one would talk about a picture. They may learn the uses of the root, how it holds the plant in the ground and gets food for it. How it gets its food may be illustrated by putting blotting-paper in ink. The children will at once tell you that it sucks up or absorbs the ink; they may then be shown that in the same way the ends of the roots absorb the moisture from the ground. This moisture is carried by the stem to the leaves, where it is changed into sap, and it is this sap which makes the plant grow and form new leaves, flowers and fruit. From this they will be able to tell readily what part of the plant assists in its growth.

Before taking up the form of the leaf and flower, get the children to look into their homes and see where they will find these forms represented. They will have quite a list of articles on which they have seen flower forms, viz.: carpets, wall-paper, curtains, dishes, etc. The parts of the leaf may then be learned, as the blade, the footstalk and pair of little blades at the base of the footstalk. Leaves which have all these parts may be compared with those which have no footstalk, being sessile or sitting. Show also how the leaf is held together by a framework. The veins in the framework of some leaves form a net, in others they run side by side, or are parallel. It would add much to the interest of the lesson if a leaf were shown with the pulp removed, or if a piece of net were cut out the

shape of the leaf, with threads run through it to represent the principal veins. In teaching the form of the leaf, the general outline should be given first, since it would first be noticed by the children. This can be done by a picture, a drawing on the blackboard, or with the natural leaf. Get the children to find as great a variety of leaves of the shape required as possible, and let them draw their outlines on the slate. In this way they would soon learn to distinguish between a long or linear leaf and a round one, between a heart-shape and an egg-shape, or the ear-shape and the kidney-shape. They may also distinguish between a sharp and a blunt-pointed leaf, or between a leaf that i toothed or not toothed, if toothed whether the teeth are sharp or round, whether they turn forward or outward. Here the blackboard as well as the natural object is indispensable.

After the leaf comes the flower. The use of the flower is to produce fruit and seed from which new plants come. The parts of the flower may be learned, viz.—the outer cup, the inner cup, the stamens, and pistils, the outer and inner cups being called envelopes, because they cover and protect the stamens and pistils the same as an envelope covers a letter.

The most simple forms of simple flowers may be learned, such as the bell shape, wheel-shape, lip-shape. Then compare simple and compound flowers and leaves. Here is a good opportunity to begin lessons on color. After flower forms have been studied the different kinds of fruits may be compared; thus, the fleshy fruits, such as apples, grapes, tomatoes, and berries of different kinds may be compared with stone fruits, as the cherry, plums, etc. and then with dry fruits, as the acorn, and key. Children from five to eight or nine years of age may in this way become very interested in the study of plants during the summer months when plants of every description are at hand.

Older pupils by pursuing a different course could very profitably begin the study early in the spring or winter months. Begin with the uses of plants, how they furnish man with food, materials for clothing, building materials, and fuel, also how they purify the air for animals. The different classes of plants, viz., food plants, medicinal plants, and industrial plants could be taken up separately, for example, if we take food plants, a number of lessons could be given on their geographical range and distribution, the different forms in which they supply food, and how they regulate the distribution of animals. Show how plants differ from animals in their structure, mode of growth, power of voluntary motion, and relation to the air. Then take up the food of the plant, how, it passes from the root to the leaves not only through little tubes by absorption or capillary attraction but from one cell to another in the tubes by the process of endosmosis, as when the moisture passes into a raisin when put in water.

Show the different ways and purposes for which the sap is stored up, and how it changes during the growth of the plant. Take Indian Corn, for example. In the leaves it has the form of thin mucilage, in the stalk it turns into sugar to nourish the blossoms, in the grain it is laid up in the form of starch, either for food or for nourishment for the young plant; when the grain germinates the starch is changed into sugar which in the growing plantlet is again changed into plant fabric. The different modes of root development and the different forms of roots may be compared.

The shape of leaves; viz., the general outline, apex, base, and margin, as well as the forms of flowers both simple and compound may be learned from diagrams, so that by the time spring has arrived the pupils will be ready for object lessons on the whole plant, and will not lose time in learning names which can be learned without, as well as with the plant. They will also be ready to collect plants for their plant-book or Herbarium which they can make for themselves at the cost of a few cents.

A good exercise once in a while is to allow each pupil to write out the analysis of a plant at home. Plants may be compared, as the fruit trees and forest trees of our own country.

Object lessons may be given under the following heads, viz.—Its Class; as to its use, texture, and length of life. Description; taking the root, stem, leaf, flower and fruit in order. Locality; where it was found in its wild state and where cultivated at present. Uses; Genus, Species, Orders, giving some general characteristics and naming some other plants in the order.

Suppose the potato be taken for the day's lesson. All parts of the plant, root, stem, leaf, flower, and fruit must, if possible, be before the class.

POTATO.

Class.—Food-plant. Annual Herb.

Description.—Root fibrous, Stem three-sided; branches above bearing flowers and fruit, those underground swelling out into tubes which contain eyes or buds from which new plants come. The reason why the tubers are planted instead of the seed is because the greater amount of nourishment in the tuber produces a more vigorous plantlet, and consequently larger potatoes. Leaf, unequally and oddly pinnate. Flower, corymb. Corolla, wheel-shaped, five parted. Fruit, a many seeded berry.

Locality.—Native of S. America, taken to Ireland by Sir Walter Raleigh; to England by Sir Francis Drake. It has been extensively cultivated only about a century.

Used.—For food and in the manufacture of starch.

Genus—Solanum; Species, Tuberosum.

Order.—Solanacæ, or Nightshade family.

Many of the plants in this order are narcotic, rendering the fruit and herbage dangerously poisonous, as Henbane, Belladonna, Tobacco. The Potato, and Tomato have the narcotine expelled by ripening in the sun or in cooking.

A Teacher in order to give a course of lessons successfully must spend more or less time in preparation. If he would like assistance, Mr. Gray for one dollar will show him "How Plants Grow," or for $2.75 will give him his "New Lessons in Botany."

VERBA ET PRETEREA NIL.

BY C. C.

After all our contrivings, and the wisdom of our text-books, what a vast amount of our teaching remains for our poor pupils, "words and nothing more." There is no patent process for eradicating original ignorance out of human beings, or a candidate at the last examination for entrance to High Schools would not have hazarded the statement that a "glacier is a Pasture track of land," about "the 21th of september." The boy who gave information about the "N. Frigate and S. Frigate zone," very naturally thinks that "climate is the system of the air," and that "zones are belts running through the earth," while "the length of each zone = 1408 deg."

Who was at fault, this other boy or his teachers that he was so blind as to write: "The N. temperate zone is bounded on the north by the arctic circle, on the south by the Tropic of Capricorn, on the east by the Atlantic Ocean, on the west by the Pacific Ocean."?

Let us join the general chorus, and blame excessive devotion to "the cross-grained nurses of the cube and square" for the following recitilinear and maliciously mathematical statements: "From a knowledge of the mountains of a country you obtain the scenery of a country;" "we can obtain the information that Cattle & Sheep are Raised Henceforth the exports of Wool, tallow Hides." "Trinidad is a city in Quebec near the mouth of the R. St. Lawrence." "Vancouver an island in the Gulf of St. Lawrence." "Plateau is an island formed at the mouth of a river." "Vancouver is the capital of West Minister and in the western part of the same." "Glaciers are large masses of ice." "The Mersey is a river in Africa; the Volga empties into the Atlantic Ocean; the Oder into

the Pacific." Let us believe that the over-exactitude, and the excessive precision of a too prolonged flirtation with mathematics were the prime causes of such bad composition as "The reign of King John in England is not a very remarkable one is was as all other reigns, troubles." The Minister of Education is evidently to blame for the historical statements that "the Whig aristocracy means the conceitedness of the Whigs;" also "was the defeat from the power the Tories won the vicory hence the Name." "By the wars of the Roses the Tudor Period was established." "Reform Bill was a bill which enacted that the French canadians could make their own laws." It is equally manifest to every candid and unprejudiced mind that the arrogant Central Committee are responsible for the following delicate morsels of information: *The bearings of every possible harbor*, means "what the ships were laden with," also "noting how much the harbors would carry if there would happen to be shipping there, whether they would bear many ships of great burthen or not." *A salvo of ordnance*, means, "a kind of law" and also "shouts of praise." After what we have all suffered at the hands of this Central Committee, who does not sympathize with the poor little fellows writing in the confusion of confusion. "One day darkness black as pitch came over the scene something like a pine tree." The general state of departmental regulations is manifestly the cause of the candidate's assertion that "impetuosity = wisdom." It needs no demonstration to prove that the pernicious laws our legislators have placed on the statute-book, the wretched cobbling and tinkering they have practised on the school law, and their shabby treatment of the great cork-screw question, were enough to make any boy write "Montcalm was glad to be defeated." "Montcalm lost the Battle and had to pay Britain." Berry = "a King of fruit." Crew="a King of a wail." Troops of the line = "men engaged to fight in one line" = "that the troops were arranged in lines." These last statements show the evil of introducing party politics into educational matters. And the whole of these *bona fide* and *verbatim* specimens evidently prove that we teachers are entirely free from any carelessness in our work, that we persistently and successfully aim at clearness of thought, accuracy of expression, and the constructive comprehension by our pupils of all the facts we carefully deposit in their memories. A glance shows the disinterested spectator that we teach one thing at a time, and that we invariably concentrate such a focus of energy and enthusiasm on that one thing that it immediately becomes the pupil's own private possession. Any unprejudiced bystander may observe how successful we are hanging the pictured walls of memory with life-like, breathing portraits of fact and reality. The few occasional blunders that do turn up when our pupils are subjected to exact tests, are chiefly chargeable to those misguided Grangers who compelled our beloved legislators to induce the Education Department to curtail the long holidays. Down with the Grangers! Let every Convention "resolute" them into the limbo of forgetfulness! Verba et preterea nil!

Mathematical Department.

VICTORIA UNIVERSITY MATRICULATION, 1880.

Examiner.—J. A. McLellan, LL.D.

ALGEBRA—HONOR PAPER.

1. If $a=-b=-3c=1$ find the value of
$(a+b)(a-b)(a-c)\div(a+c)(a+b)(c-1)$; and determine the value of $a+b-c+3a^{\frac{1}{3}}b^{\frac{1}{3}}c^{\frac{1}{3}}$ when $a^{\frac{1}{3}}+b^{\frac{1}{3}}-c^{\frac{1}{3}}=0$.

2. Divide, using detached coefficients,
$1+x^2+x^3+x^4+x^5+x^7$ by $1+x+x^2+x^3+x^4+x^5$; and
$5x^4+2$ by $3x^2-2x+3$ by Horner's method.

3. Find the value of $2x^5+401x^4-199x^3+399x^2-602x+211$ for $x=-201$; and show that $x^4+12x^3+5x^2-7$ is equal to
$y^4+4y^3-43y^2+92y-67$, if $y=x+2$.

4, State the law of Indices, and prove it for positive integral Indices. Assuming the law to be general, interpret the expressions x^{-m}, $x^{\frac{m}{n}}$, when m, n are positive integers.

Simplify $\left(\frac{1}{64a^3b^3c^6}\right)^{-\frac{1}{3}}\div\frac{1}{8(a^2b^2c^4)^{\frac{1}{2}}}$.

5. Prove
$$\frac{1}{(a-b)(a-c)(x-a)}+\frac{1}{(b-a)(b-c)(x-b)}+\frac{1}{(c-a)(c-b)(x-c)}$$
$=1\div(x-a)(x-b)(x-c)$; also find the fractions which, when united by addition, shall give $2x\div(x^2-1)$.

6. Solve:

(1) $\frac{x^2-5}{x^2-6}+\frac{x^2-11}{x^2-12}=\frac{x^2-7}{x^2-8}-\frac{9-x^2}{x^2-10}$

(2) $8\sqrt{3x}+\frac{243+324\sqrt{3x}}{16x-3}=16x+3.$

7. Find the condition that x^2+px+q and x^2+p_1x-q may have a common measure. Find the H. C. F. of
$(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3$ and
$a^5(b-c)+b^5(c-a)+c^5(a-b)$.

8. Solve (1) $\frac{x+\sqrt{x^2-4^2}}{x-\sqrt{x^2-4^2}}=\frac{x}{4}$.

(2) $\frac{x^4+1}{(1+x)^4}=3\frac{1}{2}$.

(3) $\frac{1}{10}(x^4+y^2)=\frac{1}{3}(x+y)$, and $xy=8$.

9. Two lights of equal intensity are placed at a distance a from each other; find a point in this line a, at which the sum of the illuminations shall be a given quantity b, it being assumed that the intensity of illumination varies as the square of the reciprocal of the distance from the light.

10. If the pth term of a geometric series$=P$, and the qth term $=Q$, show how to determine the series.
Sum to infinity $1+3r+5r^2+\ldots\ldots$

11. Prove that the geometric mean between two quantities is a mean proportional between the arithmetic and the harmonic mean.
If a and g be respectively the arithmetical and geometrical mean between m and n, and h the harmonic mean between a and g, prove that $h=2(m+n)\div\left\{\left(\frac{m}{n}\right)^{\frac{1}{4}}+\left(\frac{n}{m}\right)^{\frac{1}{4}}\right\}^2$

12. Prove the Binomial Theorem for a positive integral exponent.
Determine the first negative coefficient in the expansion of $(1+3x)^{\frac{13}{3}}$.

SOLUTIONS.

1. $a+b=0$, $\therefore$ expression assumes the form, $\frac{0}{0}$. If, however, we strike out the common factor $(a+b)$ we get expression $=-3$.
$(a+b-c+3a^{\frac{1}{3}}b^{\frac{1}{3}}c^{\frac{1}{3}})=(a^{\frac{1}{3}}+b^{\frac{1}{3}}-c^{\frac{1}{3}})$
$(a^{\frac{2}{3}}+b^{\frac{2}{3}}+c^{\frac{2}{3}}-a^{\frac{1}{3}}b^{\frac{1}{3}}+a^{\frac{1}{3}}c^{\frac{1}{3}}+b^{\frac{1}{3}}c^{\frac{1}{3}})=0.$

2. $(1+0+1+1+1+1+0+1)\div(1+1+1+1+1+1)$ &c.
Answer $1-x+x^2$.

$$\begin{array}{r|l|l}
3 & 5+0+0 & +0\ \ +2 \\
+2 & +\frac{10}{3}-5 & -\frac{50}{27}+\frac{25}{9} \\
-3 & +\frac{20}{9} & -\frac{10}{3} \\
\hline
 & \frac{5}{3}+\frac{10}{9}-\frac{25}{27} & -\frac{140}{27}+\frac{43}{9}
\end{array}$$

$=\frac{5}{3}x^2+\frac{10}{9}x-\frac{25}{27}$ and remainder $-\frac{140x}{27}+\frac{43}{9}$.

3. $x-201=0$. Divide given expression by $x-201$ by Horner's method, the remainder is 10. Answer.
$x=y-2$. Divide the second expression continuously by $y-2$ as far as possible, using Horner's method. The successive remainders are: -7, 0, $+5$, $+12$, and final quotient 1. Hence 2nd expression
$=(y-2)^4+12(y-2)^3+5(y-2)^2-7$
$=x^4+12x^3+5x^2-7$.

4. Book-work. $\frac{1}{x^m}$, $\sqrt[n]{x^m}$, $32a^2b^2c^4$.

5. Assume them equal. Clear of fractions, and we get

$$(x-b)(x-c)(b-c)-(x-a)(x-c)(a-c)+(x-a)(x-b)(a-b)$$
$$=(a-b)(b-c)(a-c).$$

Now we can show this equation to be true. For, left hand vanishes when $a-b=0$, $\therefore$ $(a-b)(b-c)(a-c)$ is a factor, and there are no other literal factors. Put $x=a=0$, $b=1$, $c=2$, and we find the numerical factor $=1$.

Assume $\frac{2x}{x^2-1}=\frac{A}{x+1}+\frac{B}{x-1}$. Clear of fractions and equate coefficients, $\therefore$ $A+B=2$ $A-B=0$, &c.

Answer $\frac{1}{x+1}$ and $\frac{1}{x-1}$.

6. (1) Complete divisions of fractions, quotients cancel, put remainders equal, $x=\pm 3$ is one root. After dividing through we have left

$\frac{1}{(x^2-6)(x^2-12)}=\frac{1}{(x^2-8)(x^2-10)}$. From this we may get $\frac{1-\frac{6}{x^2}}{1-\frac{8}{x^2}}=\frac{1-\frac{10}{x^2}}{1-\frac{12}{x^2}}$. We see that as x approaches ∞ the fractions $\frac{6}{x^2}$, &c., approach 0, and the equation approaches an identity, Hence the other two roots are each $=\infty$.

(2) Transposing and factoring,

$$\frac{81\sqrt{3}\,(4x^{\frac{1}{2}}+\sqrt{3})}{(4x^{\frac{1}{2}}+\sqrt{3})(4x^{\frac{1}{2}}-\sqrt{3})}=(4x^{\frac{1}{2}}-\sqrt{3})^2$$

$\therefore$ $81\sqrt{3}=(4x^{\frac{1}{2}}-\sqrt{3})^3$ $\therefore$ $x=3$ by inspection;

or, taking cube root $3^{\frac{3}{2}}=4x^{\frac{1}{2}}-3^{\frac{1}{2}}$

$$4x^{\frac{1}{2}}=4(3^{\frac{1}{2}})$$
$$\therefore x=3.$$

7. Let $x+m$ be their H. C. F. Divide it into each and put the remainders each $=0$; $\therefore$ we have

(A) $m^2-pm+q=0$ and $m^2-p_1m-q=0$ (B), or $m(p-p_1)=2q$, or $m=2q\div(p-p_1)$ substituting this in (A)

$$4q^2-2pq(p-p_1)+q(p-p_1)^2=0.$$

First expression $=3(a-b)(b-c)(c-a)(a+b)(b+c)(c+a)$ by the method employed in No. 5. Also second expression vanishes when $(a-b)$, $(b-c)$, or $(c-a)=0$, but it does not vanish when $(a+b)$, $(b+c)$, or $(c+a)=0$; $\therefore$ $(a-b)(b-c)(c-a)$ is the H. C. F., for it is easily seen that 3 is no factor of second expression.

8. (1) Add and subtract numerators and denominators.

$\frac{\sqrt{x^2-16}}{x}=\frac{x-4}{x+4}$ $\therefore$ $\sqrt{x-4}=0$. $x=4$,

$\frac{\sqrt{x+4}}{x}=\frac{\sqrt{x-4}}{x+4}$ $\therefore$ $x=\frac{1}{2}(-3\pm\sqrt{-23})$

(2) Clear of fractions, transpose, divide through by x^2 and arrange thus:

$$5(x^2+x^{-2})+28(x+x^{-1})+42=0,$$

i.e., $5(x+x^{-1})^2+28(x+x^{-1})+32=0$, a quadratic from which $x+x^{-1}=\frac{1}{5}(-14\pm\sqrt{-14})$, a pair of quadratics from which we get four values of x.

(3) Probably x^4 is a misprint for x^2. If not we have found no solution except by Horner's method of approximation. Taking it to be x^2 instead of x^4, substituting for y and reducing we get

$$3x^4-10x^3-80x+192=0,$$

i.e., $(x-2)(3x^3-4x^2-8x-96)=0$, $\therefore$ $x=2$, $y=4$. There are evidently three other roots.

9. Let $1=$ amount of illumination at distance of one unit, and x, and $a-x$ be the distance of required point from lamps.

$\therefore$ Total illumination of point $=\frac{1}{x^2}+\frac{1}{(a-x)^2}=b$, an equation which will give x in terms of a and b.

10. pth term $=a+(p-1)d=P$;
qth " $=a+(q-1)d=Q$;
$\therefore$ $d=(P-Q)\div(p-q)$;
and $a=P-(p-1)(P-Q)\div(p-q)$, which determines the series.

Let $S=1+3r+5r^2+\ldots\ldots$ad. inf.
$\therefore$ $Sr=\quad r+3r^2+\ldots\ldots\ldots\ldots$
$\therefore$ $S(1-r)=1+2(r+r^2+r^3+\ldots\ldots$ad. inf.)

i. e., $S(1-r)=1+\frac{2r}{1-r}$

$$\therefore S=\frac{1+r}{(1-r)^2}.$$

11. Book-work. $a=\frac{1}{2}(m+n)$, $g=\sqrt{mn}$, $h=\frac{\sqrt{mn}(m+n)}{\frac{1}{2}(m+n)+\sqrt{mn}}$

Multiply numerator and denominator by $\frac{2}{\sqrt{mn}}$ and we have the required relation.

12. Book-work. General term $=\frac{p(p-q)\ldots\ldots\{p-(r-1)q\}}{1\cdot2\ldots\ldots r\cdot q^r}$

where $p=13$, $q=3$ $\therefore$ $(r-1)q$ must $>p$ $\therefore$ $r=6$, $\because$ r is an integer.

Answer, 6th term,

EUCLID—Books I.–IV.—HONORS.

Examiner—J. A. McLellan, LL.D.

1. Explain the meaning of *hypothesis, corollary, axiom, postulate,* and distinguish clearly between direct and indirect demonstration.

2. Prop. 32, Book I. If the interior angle at one angle of a $\triangle$ and the exterior angle at another be bisected by straight lines, the angle contained by the two bisectors $=\frac{1}{2}$ the third angle of the $\triangle$.

3. Prop. 35, Book I. $ABCD$ is a parallelogram. A straight line EF drawn $\parallel$ to the diagonal AC meets AD, DC or these produced in E and F respectively; show that the $\triangle$ $ABE=\triangle$ BCF.

4. Prop. 45, Book I.

5. Prop. 3, Book II. Divide a line so that the rectangle contained by whole line and one part = twice square on other part.

6. Prop. 11, Book II.

7. Prop. 17, Book III. AB is diameter of circle, C any point on circumference. AC, BC produced meet the tangents at B and A in D and E, and the tangent at C meets the same tangents in F and G. Show that FG is half the sum of BD and AE.

8. Prop. 26, Book III.

9. Give, without proof, the constructon for inscribing a regular pentagon in a given circle.

A, B, C, D, E, F are successive angular points of a regular decagon inscribed in a circle whose centre is O. OC cuts AD in G. Prove that AE bisects OG at right angles.

10. Prop. 14, Book VI. Enunciate the converse of this proposition.

11. Prop. 31, Book VI. If these figures be rectangles, prove the proposition by a method analagous to that of I. 47.

THE MATHEMATICAL TRIPOS.

Cambridge, Eng. Jan. 1882.

EXAMINATION PAPERS.

(Selected from the first three days' examination.)

ARITHMETIC, ALGEBRA, and PLANE TRIGONOMETRY.

1. An article made of sterling silver weighs as much as 5s. 6d. in silver; the same article and a fourpenny piece together weigh $1\frac{1}{4}$oz. avoirdupois. The cost of the article is 11s. $5\frac{1}{2}$d. What is this per oz. Troy?

2. Find two independent relations between the roots and the coefficients in a quadratic equation.

If the result of eliminating x between the equations $x^2+px+q=0$ and $xy+a(x+y)+b=0$ be an equation in y, whose roots are the reciprocals of those of the given equation in x, then either $a(1-q)=0$, and $ap=1+b$; or $b=1$ and $p=a(1+q)$.

.3 Eliminate x, y, z, from $\frac{x^2-xy-xz}{a}=\frac{y^2-yz-yx}{b}=\frac{z^2-zx-zy}{c}$.

and $ax+by+cz=0$.

Solve (*i*) $\sqrt{(\alpha x+\beta)}+\sqrt{(\alpha_1 x+\beta_1)}=\sqrt{(ax+b)}+\sqrt{(a_1 x+b_1)}$ where $\alpha+\alpha_1=a+a_1$, and $\beta+\beta_1=b+b_1$.

(*ii*) $\dfrac{\sqrt[3]{(3a+a^3-3x-x^3)}}{a-x}=\dfrac{3}{a^2}+1.$

4. Find the sum of n terms of a geometrical progression when the rth and sth terms are known.

B holds an estate from *A* on a lease with two years unexpired. He has made permanent improvement on it and sublet it for £510 per annum. Reckoning yearly interest at 4 per cent., the present value of the estate to *A* is 24 times *B's* interest in it. What rent is *B* paying *A*?

5. Assuming the binomial theorem for a positive integral index, prove it for a fractional one.

Prove that if the difference between p and a perfect cube N^3 be less than one per cent. of either, $\sqrt[3]{p}$ differs from $\frac{2}{3}N+\frac{1}{3}\frac{p}{N^2}$ by less than $\dfrac{N}{90000}$.

6. Find the number of combinations of n things taken r together.

Prove that, if each of m points in one straight line be joined to each of n in another by straight lines terminated by the points, then, excluding the given points, the lines will intersect $\frac{1}{4}mn(m-1)(n-1)$ times.

7. Define the tangent of an angle, and from the definition show that $\tan(180^\circ-A)=-\tan A$.

Prove directly from the definitions of the trigonometrical functions that $\dfrac{1+\cos A}{\sin A}=\cot\frac{1}{2}A$.

Find the general values of A from the equation: $\tan A+\sec 2A=1$.

8. Show *a priori* that when $\sin A$ is expressed in terms of $\sin 2A$, four values are to be expected generally.

If $\sin 2A=a$, what values of A will give the following equation: $2\sin A=-\sqrt{(1+a)}+\sqrt{(1-a)}$?

Prove that if $\sin 4A=a$, the four values of $\tan A$ are given by

$$\frac{1}{a}\left\{(1+a)^{\frac{1}{2}}-1\right\}\left\{1+(1-a)^{\frac{1}{2}}\right\}$$

9. Prove that, if $A+B+C=180$,

$\sin^4 A+\sin^4 B+\sin^4 C=\frac{3}{2}+2\cos A\cos B\cos C+\frac{1}{2}\cos 2A\cos 2B\cos 2C$,

and that if $\dfrac{\sin ra}{l}=\dfrac{\sin(r+1)a}{m}=\dfrac{\sin(r+2)a}{n}$,

$$\frac{\cos ra}{2m^2-l(l+n)}=\frac{\cos(r+1)a}{m(n-l)}=\frac{\cos(r+2)a}{n(l+n)-2m^2}.$$

10. Prove that, if θ be the circular measure of an angle less than a right angle, $\dfrac{\sin\theta}{\theta}$ lies between 1 and $1-\frac{1}{4}\theta^2$.

Find the value of $\sin 3''$ to 10 places of decimals.

11. Find the area of a triangle in terms of one side and the adjacent angles.

If a triangle be cut out in paper and doubled over so that the crease passes through the centre of the circumscribed circle and one of the angles A, the area of the doubled portion is $\frac{1}{2}b^2\sin^2 C\cos C\operatorname{cosec}(2C-B)\sec(C-B$, C being $>B$.

12. It is observed that the altitude of the top of a mountain at each of the three angular points A, B, C, of a plane horizontal triangle ABC is α. Shew that the height of the mountain is $\frac{1}{2}a\tan\alpha\operatorname{cosec}A$.

Shew that, if there be a small error n'' in the altitude at C, the true height is very nearly $\frac{1}{2}\dfrac{a\tan\alpha}{\sin A}\left(1+\dfrac{\cos C}{\sin A\sin B}\dfrac{\sin n''}{\sin 2\alpha}\right)$

EUCLID.

1. Prop. 35, Bk. I. Find the condition that must exist in order that it may be possible to fold the four corners of a quadrilateral piece of paper flat down on the paper so that the four angular points meet in a point, and the paper is everywhere doubled.

2. Prop. 3, Bk. III, first part. Draw from a given point P two straight lines PQ, PR, at a given inclination to one another, to meet two given straight lines in Q and R, so that PQ, PR may be equal.

3. Prop. 21, Bk. III. If A, B, be two fiixed points on a circle, and C, D, the extremities of a chord of constant length, then the intersections of AD, BC and of AC, BD lie on fixed circles.

4. Prop. 35, Bk. III, case two. If P be a point in a diameter AB of a circle, and PT be the perpendicular on the tangent at a point Q, then rect. PT, AB=rect. AP, BP+sq. on PQ.

5. Prop. 8, Bk VI. Show that the middle points of the four common tangents to two circles which lie outside each other lie on a straight line.

6. Prop. 19, Bk. XI. If the perpendiculars from two of the angular points of a tetrahedron on the opposite faces meet in a point, the perpendiculars from the other two angular points meet in a point.

Problems For Solution.

T. E. Colman, B.A., Frederickton Junction, N.B. sends the following problem for solution:—"Two boys bought a cylindrical tankard of milk 6 inches deep and 4 inches in diameter. One boy drank until, by tipping the tankard so that the milk came to the mouth without spilling, he could see half the bottom. Required how much of the milk this boy drank."

J. K., Prescott, requests us to give a solution of the equations $x^2+y=7$, $y^2+x=11$. This is a famous old equation of the fourth degree and of course has four roots. We can see by inspection one solution, viz., $x=2$, $y=3$. But to find all the roots we must substitute $y=7-x^2$ in the second equation for y, and get $x^4-14x^2+x+37=0$.

i.e., $(x-2)(x^3+2x^2-10x-19)=0$.

We next apply Horner's method of appoximation to find the roots of the equation $x^3+2x^2-10x-19=0$, and get

$x=3{\cdot}13$; $-1{\cdot}84$; $3{\cdot}28$; and corresponding values for $y=-2{\cdot}79$; $3{\cdot}61$; $3{\cdot}75$. These together with $x=2$, $y=3$ are the four pairs of values required.

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

EXERCISE I.

(N. B.—All answers should be carefully written out.)

1. What is the difference between a simple and compound body?

2. Name twenty elements, and give their chemical symbols and atomic weights.

3. Are we acquainted with all the elements?

4. Define *matter*, *volume*, *mass*, *molecule* and *atom*.

5. What is the *atomic weight* of an element? What is taken as the unit of comparison? How does the *molecular weight* differ from the atomic?

6. Mention differences between chemical force and physical forces?

7. What is the method of investigation in chemical research

8. How do chemical changes differ from physical chang s

9. What is the special province of the chemist in the study of matter?

10. Mention the chief means at our command for securing chemical union or decomposition.

11. What view does the chemist take of the constitution of matter?

12. Give some examples of the extreme divisibility of matter.

13. If the globe and all upon it consisted of one chemical element, say gold, would the science of chemistry be possible?

14. Explain the use of the balance to the chemist.

15. Illustrate the statement—"Matter exists in three forms."

16. When a candle is burnt in a wide-glass tube, the upper half

of which contains lumps of dry caustic soda, the soda arrests the products of combustion. If the whole, tube and candle, be counterpoised when the candle is first lighted, it will be found that the apparatus has actually gained in weight, although the candle has disappeared. What does this experiment teach?

17. Define Chemistry, and write a short account of chemical action.

18. Iodine has a metallic lustre, some metals lose it when powdered; potassium, sodium, and lithium will float on water, while bromine, iodine, carbon, and arsenic are heavier than water. What conclusion do you draw as to the line separating metals from non-metals?

19. Give examples of mechanical mixtures. Discuss one of them.

20. Air consists of oxygen and nitrogen, with a small per centage of other gases. If a little air be shaken up with freshly distilled water, its composition is changed somewhat, the water having dissolved some of the oxygen. What do you infer as regards air?

21. What is a chemical symbol? Give the symbols for ammonia, sal-ammoniac, sulphuric acid, iodide of potassium, corrosive sublimate, prussic acid, and hydrochloric acid.

22. Describe an experiment to illustrate each of the following concomitants of chemical action:— (1) Change of color, (2) of temperature, (3) of form, (4) evolution of light and flame.

23. State Thompson's idea of the distance between the centres of molecules.

24. The symbol or formula for water is H_2O, *i.e.* two atomic weights of hydrogen and one of oxygen. How many lbs. of oxygen in a barrel of water? Given 1 barrel=63 gals. and 1 gal.=10 lbs. N.B. $O=\frac{16}{18}$ water=560 lbs.

25. How many grams of zinc in 1000 grams of chlorate of potash, $KClO_3$? N.B.—The $O=\frac{48}{122.5}(KClO_3)=391.83$.

26. Find the composition of 100 parts of nitric acid, HNO_3 Ans. O=76.19, N=22.22, H=1.59.

27. It was anciently believed that fire, earth, air and water were elements. State the views which now prevail as to the nature of each of these things. What is now meant by the term element? (Intermediate Exam. 1876.)

28. Calculate the per centage composition of ammonia, sulphuric acid, and common salt (NaCl). (Intermediate Exam. 1876.)

29. Describe minutely any chemical experiment you have yourself performed. (Intermediate Exam. 1877.)

30. Give the names and atomic weights of the elements represented by the following symbols:—Al, C, Ca, Cu, Fe, Cl, Pb, S and P. (Intermediate Exam. 1878.)

31. What is the difference between a mechanical mixture and a chemical compound? (Intermediate Exam. 1879.)

32. State generally the conditions that promote chemical action.

(To be continued.)

NOTES ON HYGIENE.

BY J. A. WISMER, PRINCIPAL OF PARKDALE PUBLIC SCHOOLS.

(Continued from last month.)

Never use hair dyes; most of them contain more or less nitrate of silver in solution, or some of the stronger acids, and in order to discolor the hair they must be of sufficient strength to injure, if not to destroy its vitality. Notice the harsh, wiry, dry look of dyed whiskers or hair, so different from the glossy brightness of natural healthy hair. Any child whose attention has been drawn to this difference in appearance can at once detect dyed hair. In olden times gray hair was esteemed honorable; now, however, a few stray hairs turning gray are sufficient to excite consternation in the minds of many foolish people, and sinful vanity leads them to use those injurious washes and hair dyes which, when once commenced, must be continued, or the hair will turn to a disagreeable, dirty green color. To sum up, then, we conclude that hair dyes discolor the scalp, injure the vitality of the hair, deceive nobody as to their use, and are a waste of time and money. Hair invigorators, or preparations for promoting the growth of hair (some of which are advertised to produce a fine mustache in six weeks), are also injurious. The hair follicles are over-stimulated by tincture of Cantharides, or Spanish Fly, which is the basis of most of these mixtures. It follows that hair, thus produced and artificially stimulated like a hot-house plant, cannot have the strength, firmness, or durability of natural healthy hair. All efforts to improve on nature in these matters have proved failures. Boys and girls while at school, and doing a considerable amount of mental labor, should keep the hair cut short, especially in summer. In no season should the head be too warmly clad or covered by heavy, tight-fitting caps. A train of evils may follow inattention to this simple matter; among them I would mention headache, congestion of some of the blood vessels in the brain, with bleeding at the nose, and very often premature loss of hair, or baldness. Baldness, however, is oftener hereditary, therefore if your immediate ancestors were bald-headed you need not be alarmed about being bothered with too much hair, especially after middle age.

I need scarcely do more than mention the fact that cosmetics, pearl powder, etc., for the skin are highly dangerous. These preparations almost always contain either white lead or arsenic, both of which are rank poisons. They clog up the pores of the skin and prevent them from doing their duty in perspiration. Their use causes the skin to turn yellow and look like parchment, and, like the hair dyes already mentioned, when once commenced they must be continued. I would not need to mention the effects of these *beautifying preparations* if you all had seen the face of an elderly woman, who has been in the habit of using paint and powder, before she was fixed up for company. Plenty of exercise in the open air, the free use of soft water and coarse towelling will give healthy bloom and color to the cheeks—if these fail, nothing else will do it. I mentioned bleeding at the nose a short time ago. If this should be persistent, it may generally be controlled by applying cold to the back of the neck, as snow, ice, cold steel, or ice cold water. If this will not stop it, close the nostrils with cotton batting saturated with tincture of perchloride of iron, if obtainable, or better still call in a physician.

We have thus briefly discussed the hair and face, now we come to the teeth and breath. The temporary or milk teeth, only twenty in number, appear and disappear by the time a child is eight or nine years old, and need not, therefore, be discussed in this connection. The permanent teeth, thirty-two in number, should if properly treated be much more permanent, as a rule, than they are in this country. To keep them clean and healthy they should be carefully brushed night and morning. Use a stiff tooth-brush and pure soft water. Instead of expensive dentifrices a little powdered chalk or charcoal may be used, but they must be very finely divided, or well pounded in a mortar, to prevent discomfort afterwards by their particles getting between the teeth. Never use pins, sharp steel, or other hard substances to pick the teeth. If you must pick the teeth after eating, use a blunt-pointed quill or ivory.

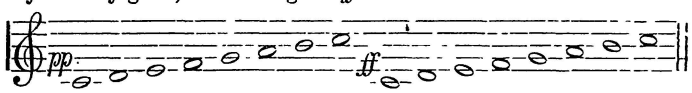
(To be continued.)

TONE TALKS WITH THE TODDLERS.

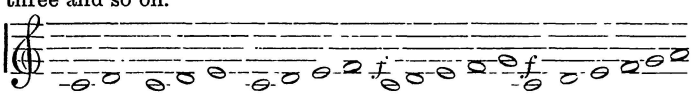
NO. II.

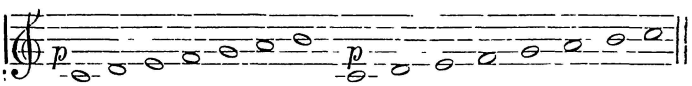
BY MISS GEORGINA RICHES.

Whom were we talking about, yesterday, Jenny? "Miss Fa, the discontented girl, and Sol, the bright-eyed boy who cut his initials S. C. on the ladder; La, the poor beggar-girl who cried bitterly; Si, the little girl who tried to cheer her and pointed up to the blue sky, and Master Do, who was so inquisitive that he left his little short step and jumped half-way up the ladder, so that he might see and hear all that was going on." Thank you, Jenny. Suppose we have a party to-day, and invite all these little boys and girls to it; it will be a musical party, you know, and will have the blackboard for the drawing room. Now, Willie, will you make the seats for them to sit on? Johnnie, take the chalk and put on Sol's initials, and Mary, show the little girls their places; Fred bring in the boys and get them seated, and then our party will begin. While Mary and Fred are attending to our visitors, the class may make the party on their slates. Now, as Mary and Fred have finished, we will take a peep at our guests. You see they are well behaved, each one keeps his or her own place. They are ready to commence their little songs, so now, as I point to them, you sing *pp.* what they say. Very good, now change to *ff.*

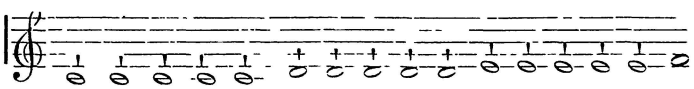


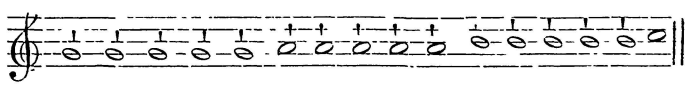
Thanks. Now, we will play at jumping, This is the way: Go up one step and jump down; then two steps and jump down; then up three and so on.





Isn't that a nice game to play at? Did you ever drop a marble on the stairs, Johnnie? "Yes, ma'am." What did the marble do? "It rolled down the stairs." Tell me what the marble said as it touched each step? "Tick, tick, tick." Now, we'll make that tick. Here it is. When you see that mark under or over our little friends, sing in the short, quick way that the marble ticks:





Now, as we are tired of jumping, we'll have a song. Let us sing "Old Mother Hubbard" to these tones. Well, Willie, what question do you wish to ask? "I thought their names were do, and re, and mi." What is your name? "Willie Robertson." You have two names; so have our friends; sometimes we'll call them tones, as that is their family name.

HOW TO TEACH GEOMETRY.

BY WILLIAM A. DUKE, CHATHAM, N. B.

The following is the substance of a paper read by Mr. William A. Duke before the Educational Institute, Northumberland Co., N. B.

To a young and vigorous mind, filled with a love of new ideas, Geometry should be one of the most attractive and suitable subjects. The constant occurrence of new and important truths which it presents, and their beautiful and systematic development must, if properly taught, be of great interest to students. Every one who has applied himself earnestly to the study of geometrical truths will testify to the great satisfaction to be derived from it.

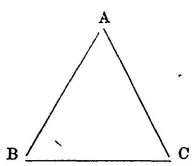
Why is it then that we so often find even our most forward and persevering pupils possessed of a decided dislike toward this branch of study? We have all experienced the difficulty of arousing any emulation or interest among children in a matter which has the nature of geometry. They have rather to be dragged along than induced to proceed from any feelings of interest.

The cause of this dislike lies in the method of teaching. In the hands of some, this branch, in itself so apposite to the minds of the young, loses all its charm. Like a fair field, under the management of ignorant cultivators, it presents an unattractive and even forbidding appearance. There are elements essential to a true method of teaching geometry which are overlooked where pupils have an aversion to the study. The lack of these elements counteracts the natural advantages of the branch.

One of the most important principles in the teaching of geometry often violated by teachers is that, *the Learner must not clearly apprehend the truth he is about to prove, but he should have a knowledge of it as a fact before he attempts to reason upon it.* This is the order of nature. Long before theorems could be proved true, their practical significence could be well understood. The fact that the circumference of a circle is a little more than three times its diameter; that any two sides of a triangle are together greater than the third side, and many others, were known and applied before they became a part of geometrical science. As it has been with the science in its development so, teaching it, the pupil should be first made acquainted with the truth by experiment. Wormell, in his excellent text-book on geometry, keeps this principle constantly before him. No reasoning is begun until a sufficient fund of observations has first been accumulated. It is this part of Wormell's text which is best understood and most frequently ignored. Very many teachers entirely overlook it, considering it paltry and time-wasting. To give their class a conception of the truth about to be proved, they confine themselves to a formal enunciation which is often couched in language too general and formal to awaken in the pupil's mind any corresponding idea. He learns the words but they are as chaff to him, from which no mental nutriment can be obtained. The definitions are learned by rote simply, and as soon as they are thus memorized the class is plunged at once into demonstration. The truth stated in mere formal proposition is not sufficiently clear and will not serve the purpose designed, but is fitted to produce mechanical work only and barren minds. How often have we been required again and again to supplement these formal statements of truth by verbal and extempore explanations? Even with such illustrations, which must often be of a common-place and unsatisfactory character, the pupil hardly knows what he is about while proving, frequently gets himself confused, and finally ends by learning the whole thing by rote. Carefully prepared paraphrases to the definitions and enunciations, illustrations, explanations, everything by which the truth may be conveyed to the child intelligibly and grasped by him should be sought for and employed.

As an example of the correct treatment of definitions I will insert a method of teaching the idea conveyed by the word *triangle,* copied from Wormell's Geometry.

Mark upon a sheet of paper the position of a point A, then at that point form an angle by drawing from A two straight lines AB, AC in different directions. Take a point B in AB, and a point C in AC and draw the line BC. BC and AC will form angle at C, and BC and AB will form an angle at B. The three straight lines form a closed figure having three angles and is, therefore, termed a *triangle.*



By proceeding thus with every definition, taking care that the *pupils* do the work, which should have been prepared previous to the lesson, ideas will be garnered and not words only.

Then in a similar manner the properties of the figure, or the powers of the truth should be illustrated before using it in abstract reasoning. For instance, taking the triangle again, it may be experimented with as follows :—Form a quadrilateral with four sticks. It will be found that the sticks may be moved in various directions but yet continue a quadrilateral. But form a triangle from three of the sticks and the figure is fixed. The sticks cannot be changed in relation to each other and yet continue to be a triangle.

Another element in the successful teaching of geometry of the highest importance is that the truths learned by demonstration should be understood in their application. That no truth is well learned until it can be applied, is a truism. Instead of hurrying from theorem to theorem without halting to consider their use, pains should be taken, after every truth has been known as a fact and proved, to drill the pupil upon its application. Give him examples of its use, and set him to work searching for other examples. For instance: "The opposite sides and angles of a parallelogram are equal to one another and the diagonal bisects it." The application of this truth may be shown by reference to the parallelogram of forces, the steam engine, etc. The principle of the isosceles triangle is used extensively in common examples of architecture, the use of tangents in railway curves. Examples will suggest themselves abundantly to any observer. The pupil should have as much liberty allowed him as possible to experiment, to investigate, to question, to think. Every effort should be made to encourage him in these exercises. Excite his curiosity by hints of the importance of the subjects and of the valuable secrets to be yet acquired If discouragement shows itself at the outset, excite him to fresh ardor by representing the uselessness of any attainment acquired without difficulty. There are unknown wonders to be discovered, but only to those who are willing to brave the difficulties.

Gratify the pupil by leading him to make discovery of new ideas. Nothing will please a pupil so much as to hit upon an idea after repeated experiments. Give him full scope for the exercise of his own thoughts. Nothing should be shown him which he can discover for himself, nor should any mechanical work be done by the teacher for the sake of rapidity or other reason which the pupil can do for himself. Nothing should be taken for granted. Every line, angle, etc., spoken of in the demonstration should be drawn. It is said of the celebrated Faraday, when lecturing to children, that he would not take for granted that an apple would fall to the ground if left unsupported. He would actually perform the operation.

Having now stated a few general points to be kept always in view, I will explain the order in which I would take up the various parts of a set of geometrical propositions.

1. It is necessary at the outset to understand and thoroughly memorize all the definitions.

2. Then the propositions to which they refer may be taken up. As it is in this part of the work above all others that correct methods of teaching are necessary, I will mention a few exercises and precautions to be observed by the teacher, which will do much towards facilitating the perfect and speedy acquisition of a lesson.

In the first place the teacher will find much value to arise from simplifying the proposition and making it interesting by means of a familiar talk previous to assigning any lesson. Unless the truth can be readily appreciated the pupil is most apt to learn it by rote. It should be the aim of the teacher, by the preliminary talk, to make the matter so plain as to remove all inducement for rote-learning. In this preface to the lesson we should show to be true, in one or more cases, what will afterwards be shown to be always true. No preliminary exercise will be so valuable as to lead the class to discover the truth for itself. Our object in this exercise is to make the pupil grasp the truth, to awaken his interest, and to remove difficulties. Wormell provides the substance of valuable conversations such as I propose. The importance of such a collection can only be known to such teachers as have experienced the difficulty of framing original examples. It is a task of great difficulty, and involving the use of much ingenuity and labor to provide on the spur of the moment such illustrations as would be of value and interest, the more especially when it must be borne in mind that to profit his class the teacher should confine his illustrations rigidly to the leading and peculiar features of the lesson.

After such a drilling as is thus recommended the pupil would go to the study of the demonstration incited by curiosity and ambitious of excelling, and not discouraged by continually recurring obstacles.

Perfect accuracy in workmanship should, in all cases, be required. The figure should be placed on the board by the pupil with neatness and accuracy in the mechanical parts, and the truth proved with mathematical precision and order. Nothing clumsy in diagram, inelegant in language, or ungraceful in posture should be permitted. Every stroke of the chalk made by a child, every word he utters has its influence in the formation of his character.

It is an excellent plan to cause the pupil to go over the demonstration without the aid of a figure. But care must be taken lest this exercise should degenerate into an aid to rote-learning, the most pernicious negative influence the teacher has to encounter in teaching geometry, To young pupils whose memory is stronger than their reason, it is far more easy to learn by rote than by proof, and unless great pains are taken to prevent it all our teaching will be vitiated by this evil.

It may, to some extent, be avoided by reversing the figure or by different lettering. But I think more can be done by appealing to the judgment of the pupils themselves. I believe strongly in the power and will of young people to obey their judgment if it be appealed to, and the danger of disobedience presented in its true colors.

3. Having finished a set of theorems, problems and exercises founded upon them can be taken up. It is a great mistake to omit the problems. They offer the most potent means of fixing the truth in the memory, and have besides an eminent value of their own in forming correct habits of thought and training the mind in reasoning and observation.

4. After finishing a series of propositions, a very complete and thorough review should take place. All the leading and peculiar points should be brought out clearly and reiterated ; all definitions and propositions should be repeated carefully and systematically.

I may say in closing that, though it is necessary to gather together and to memorize many facts, yet the teacher should always regard such memorization as a subordinate exercise. The grand end of all teaching is to lead the pupils to grasp principles. Many years are spent by each of us in making observations, in undergoing experiences, but how few grand principles we acquire, how seldom we manage to combine our experiences and trace a truth underlying them all, and producing them. It takes many observations to lead to the discovery of great ideas ; but few such can be obtained in a life-time, notwithstanding the acquisition of multitudes of facts. Yet it is by the possession of great ideas that great minds are distinguished, and not by "an infinity of loose details."

COLORED CRAYONS IN THE SCHOOL-ROOM.

Fellow-teachers, have you ever used colored crayon in your school? If not, there are many ways in which they might be made very serviceable. If your trustee or director will furnish you with half a box to be used judiciously, they will last a term and repay the cost ten-fold. With your class of beginners you can make the lesson so much more interesting and attractive to them by printing or writing the lesson or a part of it in colors.

Let the lesson be prepared after school, and placed upon the board, printing each new word in colors, and have a screen over the board so as to make the lesson a surprise when they come out to read and you will be astonished at the interest and progress.

Another way equally good is to place the lesson upon a sheet of white paper, a pound of which will cost ten cents, and last through the term. At the time for the recitation this can be placed upon a standard in front of the class.

Once each week the smallest pupils might be allowed to go to the blackboard for twenty minutes, and use the crayon for printing or making pictures.

Advanced pupils could use it to advantage in map-drawing on the board. Dates in history may be written nicely on the wall over the blackboard, and programmes tastefully arranged will add much to the attractiveness of your room.—*The Countryside.*

THE DISTINCTION BETWEEN SHALL AND WILL.

The general rule to be followed in the use of the words *shall* and *will* is, that when the simple idea of future occurrences is to be expressed unconnected with the speaker's resolve, we must use *shall* in the first person, and *will* in the second and third, as: "I shall die, you will die, he will die;" but when the idea of compulsion or necessity is to be conveyed,—a futurity connected with the will of the speaker,—*will* must be employed in the first person, and *shall* in the second and third, as: "I will go, you shall go, he shall go." I shall attain to thirty at my next birthday," merely foretells the age to which the speaker will have reached at his next birthday;" I will attain to thirty at my next birthday," would imply a determination to be so old at the time mentioned. "You shall have some money to-morrow," would imply a promise to pay it: "you will have some money to-morrow," would only imply an expectation that the person addressed would receive some money.

The Edinburgh *Review* denounces the distinctions of *shall* and *will*, by their neglect of which the Scotch are so often betrayed, as one of the most capricious and inconsistent of all imaginable irregularities, and as at variance not less with original etymology than with former usage. Prof. Marsh regards it as a verbal quibble, which will soon disappear from our language. It is a quibble, just as any distinction is a quibble to persons who are too dull, too lazy, or too careless to comprehend it. With as much propriety might the distinction between *farther* and *further*, *strong* and *robust*, *empty* and *vacant* be pronounced a verbal quibble. Sir Edmund W. Read has shown that the difference is not one which has an existence only in the pedagogue's brain, but that it is as real and legitimate as that between *be* and *am*, and dates back as far as Wickliffe and Chaucer, while it has also the authority of Shakespeare.—*Matthew.*

A SCHOOL TRUSTEE'S LOGIC.

There is nothing like logic, and every thoughful man ought to keep a package of it on hand to use in cases of emergency. A countryman was told by a schoolmaster that the earth is round and turns round, and he stared in astonishment and then said! 'I'll just try an experiment for myself.' The next day he came back with a triumphant proof that the schoolmaster's yarn was all nonsense. 'Ef the earth turns round,' he said, inquisitively, 'then half the time we are on top and half the time under, ain't we?' 'Most assuredly, 'was the reply; 'Well the earth didn't stop turnin' round last night for the first time, did it?' 'probably not, 'said the schoolmaster. 'Now then,' went on the logician triumphantly, 'see how foolish you be. Why don't you try experiments before you scare people telling such stories? Last evenin' when I went home I put a 'tater' nicely balanced on a stick that I stuck in the ground. If the earth had moved a quarter of an inch all night that 'tater' would have dropped sure: but when I got up this mornin' there it was just as I left it. We don't want no such nonsense taught here. This school closes to day, and your bill to date will be paid.

Judge Ye.— Here is a true story. A young man, son of a celebrated D.D., married a young woman, a graduate of a female seminary. They were educated and accomplished. They had two lovely daughters; both of these at about the age of fifteen died of diphtheria. As it was at a country-place, the physician looked at the surroundings. There was a flower garden in front, and a hollow to hold slops behind. "Why," he said pointing to the latter, "this is enough to kill the whole neighborhood." Were reading, writing, and arithmetic the most important things for that father and mother to know?—*The School Journal (N. Y.)*

The Right Kind.—Said one of the patrons of a school, not long since, when applying for a teacher: "I wish we could get such a teacher as we had last year; he taught the children hundreds of things they never thought of before, and my boy has pestered me with questions ever since; he will scarcely give me any rest; he tells me every thing he has heard there, and relates to me all the stories in his reading-book, and makes comments upon everything. He could not have paid a higher compliment to the former teacher. The teacher had succeeded in awakening in the pupil's mind a desire to know. Curiosity, that great incentive to the acquisition of knowledge, was fully aroused.—*Educational News.*

Notes and News.

ONTARIO.

Watford Public School has adopted the half-time system.

The Stratford, Mitchell, and Listowel High School Boards made unsuccessful application to the County Council for increased grants. The latter town paid last year $1200 in support of the High School, while 33 out of 75 of the pupils reside outside the town.

The masters and students of St. Mary's Coll. Inst. recently gave a very successful entertainment in the Opera House. Mr. Riddle gave a lecture on "Dreams," and there was a magic lantern exhibition.

On Feb. 4th the Principal of the Dresden Public School was severely assaulted by a resident of the place. The nasal bone was fractured. The alleged ground was the whipping of assailant's son. The offender was committed for trial; bail was accepted.

Mr. A. Bowerman, late Head Master of Farmersville High School, has opened a land office in Winnipeg.

The proposed High School Masters' Institute has not yet been held in Western Ontario.

A grand oyster supper was given Feb. 24th, in honor of Mr. J. B. Robinson, teacher of S. S. No. 9, Blanshard, Co. Perth. Mr. Robinson has been in charge of this school for three years, and resigns to go to the North West. The presence of about a hundred people, and the presentation of a complimentary address to Mr. Robinson, testified the high value placed upon his services.

The trustees of Blyth, in an evil hour, decided to try the "cheap teacher" experiment. We are glad to learn that, after two months trial of the new plan, they concluded to invite back Mr. Henderson, who had served them so long and faithfully and with general satisfaction. All such experiments are merely "penny wise and pound foolish," and we record with pleasure the course of the Blyth Board, which was the most manly they could adopt after seeing the error of their policy.

Mr. James Hartly, an esteemed teacher in East Huron, died March 9th, at the early age of 31. Mr. Hartley had undergone a severe operation for tumor, from the effects of which he never fully recovered. After two months of extreme suffering he succumbed to the malady, and has left a young wife and two children to mourn his loss. He was a faithful teacher, and was highly respected by all who knew him.

A very successful and pleasant entertainment was given in the Union School House, Nos, 1 and 13, Con. 14 Brooke and Warwick, Mr. J. T. Smith, teacher. Readings, recitations, songs and instrumental music by the Watford String Band made up a programme of 19 items. Very interesting and noteworthy addresses were delivered during the evening by C. A. Barnes, Esq. Inspector of Schools, and the Rev. Mr. Colwell. A large and appreciative audience was present.

Provision is made in the estimates for Education in Ontario for an Inspector for 196 Separate Schools at a Salary of $1,400. A third Inspector for High Schools has been dispensed with, so that the Inspectorship of the Separate Schools has not increased the staff. Appropriations are also made for the inspection of 52 County Model Schools, 105 High Schools, and 16 Collegiate Institutes.

Great excitement has been caused at Trenton owing to the action taken against Mr. Hicks the High School Master. A large amount of sympathy is shown Mr. Hicks, as the following resolution, passed at an indignation meeting will testify. Moved by W. H. Austin, seconded by Capt. Porte: "That this meeting views with alarm and indignation the arbitrary action of the School Board in interfering with the duties of the High School master, and driving him from the school, after a faithful and honorable service of upwards of ten years, and ejecting the advanced pupils and their school apparatus and books from their departments."

Mr. White, newly appointed Inspector of Separate Schools, at a salary of $1400 and expenses, possesses talents of a high order, and unusual fitness for this office.

The tonic sol-fa system of singing has been introduced into the Public Schools of London, Ont., and the teachers of East Middlesex are to receive lessons on the method with a view to teaching it in their schools.

Mr. Moran, I.P.S. for South Perth is about to resign, and enter the field of Journalism. The Stratford *Herald* will be under his control.

Several High Schools have suffered severely owing to numerous removals to the North-West.

The average attendance of Brantford Public Schools for the first half of 1881 was 1120; for the second half, 1204. The average attendance for February, 1882, 1190.

Mumps are very prevalent in Brantford, and the average attendance of scholars is lower on that account.

Mr. Gale, late of St. Mary's, has been appointed teacher of Penmanship and Book-keeping to the Brantford Public Schools. He will use Beatty and Clare's copies.

Miss M. S. Bates of Prince Albert, has been appointed teacher of Division 5, Brantford Central School.

Pupils arriving over five minutes late, will find the doors closed in the Aylmer public school.

Of the Lawyers and Doctors of St. Thomas some fifteen were formerly teachers.

We have already expressed our feelings concerning the loss sustained, by the teaching profession in Ontario, by the appointment of Mr. J B. Somerset, as Inspector of Schools in Winnipeg, The teachers of Lincoln Co. presented him with the following address before he left, accompanied with a splendid gold chain for himself and set of furs for Mrs. Somerset;—

St. Catharines, Jan. 21. 1882.

J. B. Somerset, Esq.:—

Dear Sir,—We, the teachers of the County of Lincoln, cannot permit you to retire from the Inspectorship without expressing our highest respect for you as a Christian gentleman, our entire confidence in your ability as an Inspector, and our appreciation of you as the teachers' true friend.

During the time you held the office, you have done much for the cause of Education in this locality. School buildings and school furniture have been greatly improved; play grounds have been enlarged and, by your excellent system of holding Township and County Conventions, you have succeeded in introducing better methods of instruction and in exciting in the minds of your teachers a desire to excel in their profession.

In your efforts to raise the standing of the schools in the County, you have used the authority with which the law invests you wisely and well. By your admirable executive ability, you have always accomplished your object, and, at the same time, retained the confidence and good-will of Trustees and people alike.

In taking leave of you, we wish you entire success in the new field of labor you have selected, and beg you to accept this small gift as a token of the friendly feelings we entertain towards you, and of our earnest prayer for the future welfare of yourself and family.

Signed on behalf of the teachers of the County of Lincoln:

Jacob Hipple, Donald McKay,
Henry G. Manley, Samuel Alton.
James Brodie.

Mr. Gray his successor will, we doubt not, ably fill Mr. Somerset's place, and receive from the teachers the same cordial support accorded to Mr. Somerset.

The Toronto Public School Board purposes to erect thirteen additional school rooms during the present year. This will make one hundred and seventy five rooms altogether. In 1874 the total number was only sixty nine.

The Staff of the Kingston Collegiate Institute at present consists of W. P. Knight. M.A., Rector and Science Master, Prince's Prizeman, and Honor-man in Mathematics and Natural Science, holds also P. S. Inspector's Certificate; Thomas Gordon, Mathematical Master, 2nd class Certificate, Member County Board of Examiners; D. A. Givens, B.A., Modern Languages, Prince's Prizeman, and Honor-man, holds also P. S. Inspector's Certificate; John R. Wightman, M.A., Classics, Gold Medalist and Honor-man Toronto University, holds also P. S. Inspector's Certificate; Miss M. L. Philips, Assistant in English Subjects, 1st Class Normal.

Miss C. Gillan, of Brantford, was appointed assistant teacher in the Collegiate Institute, by the Perth Board of Education. The salary to be at the rate of $600 per annum.

Miss Amelia Christie was appointed to the Colborne St. School, London, at a salary of $350, *vice* Mr. Sheppard resigned.

The salaries of schoolmasters in the County of York average $404.

Miss Inglis, late of Springfield, has received an appointment in St. Thomas.

Mr. Murray, for some time Mathematical Master at the Collegiate Institute, Galt. has received the appointment of Head Master at the Brampton High School.

Fingal Public School is progressing most favorably under the direction of Mr. Vance and Miss Sutherland.

Mr. D. McIntyre of Marmora, formerly of Cataraqui, has been appointed a teacher in the Central School, Guelph.

The Warden of Northumberland and Durham is in favor of the municipal grant being paid to the trustees in place of the Teacher.

At a late meeting of the University Literary Society, Mr. W. McBride, B.A., Head Master, Richmond Hill High School, obtained the prize for the graduates' essay.

The salary of Mr. T. H. Huston, B.A., Second Master, Pickering College, has been increased. Mr. Huston, it will be remembered competed for the first Gilchrist Scholarship, and won first place, but, through being slightly over the maximum age, was disqualified. We are glad his superior merits are recognized so tangibly by the authorities of the College.

MANITOBA.

At a recent meeting of the Board of Education, it was unanimously decided to inform his Honor, the Lieut. Governor in Council, that, in the opinion of this Board, the time has come when the Legislature should be asked to make suitable provision for the thorough training of teachers for the public schools of Manitoba; and to point out the importance of an early dealing with the matter.

The following gentlemen have recently been appointed Inspectors of Protestant Schools, viz.: Rev. J. Boydell, M. A., Brandon; Rev. H. J. Borthwick, M.A., Mountain City; Rev. A. Stewart, B.D. Crystal City; Rev. J. W. Wellwood, M.A., Minnedosa; Rev. B. Franklin, M.A., B.D., DeWinton; and D. A. Stewart, Esq., Pilot Mound.

The work of organizing school districts in the recently acquired territory in the west of the Province is progressing as fast as can be expected and the number of new schools, to be opened this year, will be unusually large. There are flourishing schools at Brandon and Rapid City.

In Winnipeg, the present school accommodation is barely sufficient, and arrangements have just been made for increasing it to nearly double its extent by the commencement of the next term.

The meeting of the Manitoba Teachers' Association, held on Friday and Saturday of last week, was unusually successful. The attendance was large and the papers extremely good. Papers were read by Rev. J. Douglas, Inspector of schools for Provencher, and Messrs. J. H. Stewart, J. B. Somerset, A. Springer, E. Blakely and Eaton.

The proceedings are to be printed in pamphlet form with the proposed new programme for cities and towns, for rural schools, as an appendix.

The Council of St. John's College has appointed A. L. Parker, Esq., B. A., a Fellow of that College. Mr. Parker will enter upon his duties at the close of the summer vacation. The Council has secured $25,000 of the $40,000 required for the erection of the new College building for Students in Arts and Theology.

The Manitoba College new building is nearly ready for use.

Readings and Recitations.

THE TEACHER.

Tired teacher, toiling, trembling.
  Whence those lines upon thy brow?
Fearful, in thy weakness stumbling,
  Canst not read the promise now?
"He that goeth forth while weeping,
  Sowing precious seeds in love,
Shall doubtless at the time of reaping,
  Joyful, bear rich sheaves above."

Faltering teachers, fainting, fearing,
  Why that tear-drop on thy cheek?
Clouds of doubt, not disappearing,
  That he strengtheneth the weak?
Press then on in faith each hour,
  And with joy thou'lt prove at length
That "To the faint he giveth power,
  To the frail increaseth strength.

Stalwart teacher, struggling, straining
  All the powers within thy soul,
Why thy hopes so early waning?
  Why dost never reach thy goal?
On thine arm of flesh thou'rt resting,
  Heeding not the "Stretched-out Hand";
All alone the fierce waves breasting,
  Thou'lt not gain the golden strand.

Grandest calling God has given!
  Teacher, teach thyself this truth:
Thou art ever hiding leaven
  In the ready heart of youth.
Such as it is, these will be
  In the years that are to come,
And throughout eternity:
  Wilt thou lead them, guide them home?

Teachers' Associations.

ALGOMA.—The semi-annual convention of this Institute was held in the village of Manitowaning, on the 2nd and 3rd of March, '82. H. Brown, President, in the chair. The meeting was called to order, one P.M. Owing to the very unfavorable state of the roads, only very few teachers were present, the following being the list;—President, H. Brown; Sec-Treas., J. Hanna; Librarian, T. Flesher; Messrs. Forrest, McDonald, Sim, and Trotter, Misses Munroe, McDougall, Pentland, Gray, and McNiven. The President opened a very interesting and attractive programme by an essay entitled "Mistakes in Teaching" which was highly appreciated and fully discussed afterwards. This was followed by an excellent essay by J. Hanna, entitled, "Teaching Grammar to Junior Classes," which was well received and criticized in a friendly manner. Mr. McDonald then read his most excellent essay on "How to Teach Reading," and this certainly spoke volumes for his ability as a teacher, though he has had only a very brief experience as such, and called forth the most laudatory remarks of those present. Then followed Mr. Forrest with an appreciative paper on "How to Teach Geography," which met with the general approval of the meeting. On motion of Mr. Flesher, seconded by Mr. Sim, the evening session was dispensed with, to attend a meeting of the Debating Society, as, owing to the comparatively small attendance the entertainment could not have been as successful as desired. The President then gave an address, preparatory to routine business, in which he explained the formation of this Institute and its progress, and also explained the object of Teachers' Institutes, and how they may be made a success. The programme of second day opened by an interesting and humorous reading by J. Hanna, which fully explained the culinary capabilities of men in general. The reports of Sec.-Treas. and Librarian were received and adopted, and the President then intimated that the second half-yearly grant from government was expected as soon as the report of this meeting was sent in. The accounts of W. L. Smith for printing, $6.50, and the Librarian, for postage $1.36, were ordered to be paid. It was then unanimously resolved that a question box should be opened in connection with the Institute, which means that all teachers are required to take note of, and submit for solution, any point or problem upon which they may be desirous of receiving information, more especially in mathematics, other subjects however are not excluded from the box. H. Brown was appointed receiver and custodian of the questions, which are to be published in the "Expositor" as reserved by him, and the solutions made known at next meeting of the Institute. This routine business was followed by a very interesting reading, entitled "Education of Farmers' Children" by Mr. Forrest, which was duly appreciated. In the afternoon Miss Munroe gave a very excellent and instructive essay on "How to Teach Writing," which was very well received. Mr. Brown, President, then gave an essay on "Physical Education in Schools," setting forth the great lack of elementary scientific training in our Educational System, and urging upon educationists of Canada the necessity of putting forth a determined effort to remedy this evil, for which he was accorded a unanimous vote of thanks. This was followed by an interesting essay by Mr. Flesher, entitled "Oh yes, Learning is a very Fine Thing," which was well received and duly appreciated. Then came a lecture on "Elementary Chemistry" by Mr. Forrest, after which the lecturer answered many interesting questions, proposed on the subject by persons present. It was then resolved on motion of Mr. McDonald, seconded by Mr. Forrest, that a vote of thanks be tendered the village School Board for the use of their room. The meeting throughout was very harmonious, pleasing, and instructive, and well attended by many of the villagers, and all retired, feeling much benefited, encouraged and strengthened to meet, and if possible conquer, the numberless troubles which perplex the teacher in his profession. The date of next meeting was not decided upon, it being deemed advisable to consult Mr. P. A. Switzer, P. S. I,. on this point, with a view to having him present at the summer session.

PARRY SOUND.—The first semi-annual meeting of the PARRY SOUND Teachers' Institute was held in the School House, Parry Sound village, on Thursday and Friday, March 2nd and 3rd. Notwithstanding the bad state of the roads, which prevented those at a great distance from attending, there was a fair number of teachers present, who by their work and interest, seemed desirous of making the meeting successful. *First Day.*—The President, Mr. W. Symington, took the chair at 10 a.m. After the preliminary proceedings were concluded, Mr. Knox took up the subject "First steps in Reading." He showed the importance of proceeding slowly, of teaching few letters at a time, the necessity of knowing the words by sight, and how to teach phrase-reading on the tablets and blackboard. A lively and instructive discussion followed. Mr. Steel, in giving "Elementary Arithmetic," said, he would begin by teaching the pupil to count. He showed methods of teaching *tens* and *units*. The four simple rules should be taught simultaneously, he thought. Messrs. Symington, Mathewson, and Knox, gave their views on the different methods adopted in teaching the subject. Miss Somers illustrated her method of teaching a lesson in "Reading" to a second class. She required always a thorough knowledge of the words, phrases and expressions in the lesson, before reading, explaining to the pupils what they could not reasonably be supposed to know themselves. Expression and intonation were illustrated by examples. The speaker always required a synopsis of the lesson, as an exercise in language, from the children before leaving it. Modes of teaching "Spelling" were debated by Messrs. McMillan, Steel, Mathewson, and Knox. *Second Day.* The first subject, "Elementary Grammar," was taken up by Mr. Knox. The speaker showed how to teach the "parts of speech" by drawing on the pupils' own knowledge of words; also how to have them arrive at a correct definition of the words. The order to be followed, in his opinion, should be first, classification; second, sub-classification; third, inflection; fourth, relation of words. In answer to questions, forms for analysis and parsing were given on the blackboard; and the following order was given for dealing with the sentence; 1st, subject and predicate; 2nd, enlargement; 3rd, different enlargements; 4th, different kinds of sentences. Capt. Macfarlane was listened to with much interest while giving "First lessons in Music." He advocated rote singing, at first, of selections from the readers. By a modulator and staff he showed his method of teaching the notes to more advanced classes; but would not advise the introduction of the theory into public schools. Moved by Capt. Macfarlane, seconded by Mr. Knox, "That a letter of sympathy be sent to our respected and worthy Inspector, Mr. P. A. Switzer, expressing our deep regret at his absence, coupled with our sincere hope that he may soon be able to resume his labors."—Carried. Much regret was expressed at the absence of Mr. Parker, Inspector *protem.* for the District. Moved by Mr. Knox, seconded by Captain Macfarlane. "That it be recommended to the Inspector to set the time for the next Institute, so as to fall on the two days preceding the Teachers' Examination."—Carried. Moved by Mr. Knox, seconded by Mr. McMullen. "That a vote of thanks be tendered Mr. Symington for the close attention and deep interest displayed by him during the many years in which he has been connected with this Institute; also that he carries with him to the distant country to which he is about to remove our sincere good wishes and hopes for his prosperity and happiness."—Carried. Mr. Symington thanked the Institute in a few appropriate words. Mr. Switzer made a few remarks, regretting his inability to attend, and expressing interest and sympathy in teachers' work. Mr. Ireland followed with a similar expression of good will. Capt. Macfarlane sang "Be kind to Auld Grannie," in his usual happy style; when the meeting adjourned.—JOHN D. KNOX, Sec. P. S. T. Inst.

EAST MIDDLESEX.—*Saturday Morning.*—The President opened the meeting according to the programme. Accounts were passed to the amount of $31.40. Mr. R. K. Row made a well-pointed introduction to his practical address on "Incentives to Work and Good Conduct." He treated the prize question and strongly condemned the manner upon which prizes are very often awarded, but gave unqualified commendation of the system of giving prizes, or rather reward books, on the basis of a

fair system of marking extending over the whole term. The value of monthly reports was next dwelt upon. In his reports he added a question to the parents, asking whether they were willing to have these reports discontinued. He received invariably an emphatic "No." The value of merit cards given daily in the first and second classes was highly approved. The granting of privileges of various kinds would be found a good means of rewarding the extra diligent. As an incentive to good order, the singing of an exercise song in the middle of the longer sessions is valuable. Teachers who cannot teach singing may give three minutes for general conversation and laughing, too, if there was anything to laugh at. The pros. and cons. of corporal punishment led to a conclusion in favor of a very sparing use of this stimulent. For ridicule there is nothing to be said but that it is a poison to be set on the back shelf and there left. The value of encouragement, judicious praise and private admonition cannot be over estimated. To induce greater regularity, the school, outside and in, should be made attractive. After an animated discussion in which Messrs. Donaldson, Honor, Liddicoat, &c., took part, Mr. R. Graham took up the subject of the "Occupation of Junior Pupils at Seats." The advantages of a preliminary course of carefully taught drawing of manual practices were impressed. The common plan of occupying pupils with what is called printing was shown to be highly injurious, as it confirms beginners in habits of gross carelessness and prevents the development of elasticity of the hand and freedom of its movements so necessary to the subsequent teaching of penmanship. The degeneration of writing was certified and attributed to the careless so-called printing and the low value attached to the subject of writing at the examinations. The nature of the susceptibility of the child's mind for good or evil, and the importance of such employment tends to inaugurate indefatigable exertions on the true principles of education. To develop independence, the pupil should be placed at an early age under a method of employment, which seeming hard, yet salutary discipline compels the pupil to do for himself and suffer correction until, independendently, this end in accomplished. Drawing not being as essential as some of the other elementary subjects, it is necessary that a careful distinction should be made in selecting the lessons to be given to pupils in the primary forms. As far as a teacher is able to ecomonize time without some such aid, over two thirds of their time is lost. A child's being idle in a school is attributable to the want of some lesson, which, though not requiring much thought, will eventually produce good results. The teacher is, therefore, blamable in such cases for not providing for the super-abundant activity being called forth by its own inherent nature. It therefore lies with teachers, more particularly those who are good penmen, to awaken an earnest interest in the work of penmanship. Mr. Graham gave a series of excellent exercises by charts and on the blackboard. Mr. Eckert, of London East, on introducing this subject of "Writing in our Public Schools.' said that Mr. Graham, had gone over just what he intended to take up. The new series of readers which are in process of publication will most assuredly contain a number of illustrations on this subject. While only twenty marks are given on the examination papers for that subject, we would always find teachers devoting the major part of the time to the illustration of subjects for which more marks are given. He deprecated the most ridiculous idea some people have of having and writing very peculiar and unintelligible signatures. Such people, he thought, should be banished from the profession. Boys and girls he found frequently saying, "O, I can't learn to write." To such he would say "Try." Teachers had been heard to say that they could never learn to write. Any person with a will could learn to write. Teachers should practice incessantly. Before a pupil can have that enthusiasm so necessary to its proper study instilled, he must have beautiful samples executed for him. Any teacher at least can make nicely formed letters by making them slowly. The scholars will then see that the task is not a very difficult one. He illustrated by quoting an example of a boy who, when the first lesson was given, had received a great amount of encouragement by simply practising on one letter. A confidence in himself was thus obtained. He always taught writing by single letters in the early stages, being very careful not to introduce word writing until the letters were thoroughly mastered . Mr. Yerex, of the London Commercial College, being present, the President called upon that gentleman to make a few remarks concerning the prize which he had so liberally offered to be competed for during the week of the Western Fair of 1882. Upon looking at invoices, &c., coming particularly from the United States, he found that they were nicely written, and, to his mind, the day was not far distant when we would witness such a prominence given to that subject which its importance demanded. He concluded by stating that the awarding of the prizes would be left solely in the hands of the Association. The meeting after some discussion proceeded to appoint a committee to nominate officers' and adjourned. At the afternon session, the Committee on Nomination recommended the following for officers of the Association for the ensuing year :—President, Mr. John Dearness I. P. S; 1st vice, Mr. R. K. Row, 2nd vice, Miss McNaughton; Treastrer, Mr. W. D. Eckert; Secretary, Mr. A. McQueen. Report adopted. Moved by W. D. Eckert, seconded by T. H. Scute, that this Association recognize the great benefit derived from the establishment of the combined promotion examination, and the H. S. entrance examination, in this Inspectorate, and that the Secretary be instructed to acknowledge our thanks to the Hon. the Minister of Education for granting the establishment of this examination, and to the County Council for the means of carrying it out. Carried. Moved by Mrs. Oliphant seconded by Miss. L. Langford, that the thanks of this Association are due, and the Secretary is hereby instructed to convey them to Mr. Freeland and friends who assisted him, and the children of the London South school for the instructing and entertaining session afforded this Association. Carried. Moved by H. T. Johnson, seconded by R. K. Row, that from what we have witnessed last night of the method and results of teaching singing by the tonic sol-fa notation, that it receives our hearty approval, as a system of teaching singing, and that the managing committee be instructed to interview Mr. Freeland for the purpose of giving the teachers a course of instruction, and when the roads improve to notify the teachers to meet for the purpose of receiving their report. Carried. Resolution adopted. The resolution of Condolence to Mrs. Dr. Ryerson, in her bereavement as drafted by the Committee was carried. Miss McNaughton, of London East, presented a good essay on "How to teach Reading," For beginners she thought the "Look and Say " method was the best yet in use, and the third lesson part 1st, was the best to take up first. After the pupils knew a few simple words they should be drilled on the powers of the letters. Pupils should be taught to read with expression from the very first lessons,' If a child reads in that dull, monotonous style too frequently heard, stop him and ask him a question or two and let him see that he is not talking naturally. A humorous discussion followed on how to break off the habits of misplacing the "h," stammering, etc., in which good suggestions were made by Mrs, Oliphant, Messrs. Eckert, Learn, Marshall, Honner, Dearness, and others. Mr. Falkner, of Waterloo County, was called upon and made a few remarks congratulating the Association on its large attendance and interesting programme, and asked Mr. Eckert how he would deal with German children who gave the "d," sound to "th" in that. Mr. Eckert replied that nothing was so good as being associated with purely English speaking people. Moved by Mr. McQueen, seconded by Mr. Row, that the management be instructed to make arrangements relative to the competition for Mr. Yerex's scholars, securing that gentleman as judge on behalf of the Association, and to notify the teachers of such arrangements. Carried. National Anthem.

NORTH PERTH.—The semi-annual meeting of the North Perth Teachers' Association was held in the Public School, Listowel, on the 8th and 9th inst., and was fairly attended, As the President, Mr. Monroe, was not present, Mr. Thompson was elected to preside over the meeting. The first subject taken up was "How to teach Composition." by Mr. B. Rothwell, who handled it in an able and energetic manner. He favoured the idea of causing young pupils to reproduce easy lessons from their readers, on which they had previously received a thorough drill in the class, as preliminary exercises in composition. He said that the great fault in teaching composition to beginners was in giving them a subject with which they were not acquainted. Mr. Morphy then took up "The Theory of Algebra," and, beginning with the Hindoo method, traced the various changes and improvements that had taken place in the symbols used to express Algebraic quantities from that time until the present. At the afternoon session Mr. A. B. McCallum, M. A., read a most excellent paper on English Literature, in which he traced the various phases through which poetry had passed since the days of Chaucer. He dwelt particularly on the works of Cowper in restoring English verse to the place from which it had fallen during the days of Dryden. The Rev. Dr. Sommer gave a short lecture on the benefits of teaching the Natural Sciences in our public schools. He said that a knowledge of the principles of natural science was essential to everybody, whether male or female, and that it was neglected in our schools and other things taught that were of less practical benefit. Dr. McLellan took up the principle of Symmetry in Algebra, and showed by a series of examples how very difficult problems could be solved by means of it. He said that a thorough knowledge of symmetry and factoring would greatly facilitate the study of this science. The second day's proceedings were opened at 9 a,m. The "A B C of Arithmetic" was taken up by Dr. McLellan, who favored the idea of teaching numbers to young pupils by means of sensible objects arranged in symmetrical groups. The subject of promotion examinations was then discussed by the Association. Considerable fault was found with some of the papers set at the last examination, particularly the dictation, and the arithmetic for jun. third class It was shown that the dictation for entrance to fifth class contained more difficult words than are to be found on any paper set for the intermediate examination. The following officers were elected for the ensuing year : Mr. Wm. Waddell, President ; Miss Matilda Draper, Vice-President ; Mr. Hodgins, Secretary-Treasurer, re-elected ; Messrs. W. Alexander, B. Rothwell, G. V. Poole, J. Laird and W. Knox, management committee. The Secretary-treasurer, Mr. Hodgins, read a report of the financial standing of the Association. Messrs. W. Alexander and Geo. Hamilton were appointed to audit the books and report at next meeting. The Association then adjourned to meet in Stratford at the call of the President. On Friday evening a public lecture on "National Education" was delivered by Dr. McLellan in Osborne's hall, to a large and appreciative audience.—*Listowel Standard.*

ELGIN.—The regular semi-annual meeting of this Association was held in the Coll. Inst., St. Thomas, on 23rd and 24th Feb. After routine business on Thursday, the Rev. Prof. Austin of Alma College, gave an address on "The Bible as a Text-book." The Rev. gentleman showed forth the many uses to which it could be applied as a book for this world as well as the next. He maintained that many of its passages were unsurpassed by profane literature, for true poetry and sublimity, while in a three-fold system of Education it would be the means of training the intellectual as well as the moral faculties. After a vote of thanks to W. Austin, Miss Paler took up the subject of Geometry to beginners. She very skilfully illustrated how she would draw forth the principal definitions from the pupils. N. W. Ford followed with some very pregnant remarks on the Teaching of History. At the evening session held in St. George Street Church, addresses were given by the most prominent speakers of the city, together with readings, vocal, and instrumental music by local celebrities. The Rev. Mr. Sutherland, on behalf of the Ministerial Association, read a paper treating on the topics of swearing, smoking, and drinking. Swearing, he said, was very prevalent in the land. It was an insult to intelligent men, and an apology should be offered by every man who swore in the presence of a Christian. Indulgence in strong drink was the bane of the country, and teachers could not too vividly impress on the minds of their pupils the evil effects caused by its use. He recommended several large books which children should read; teachers should perform experiments before their classes, showing how alcohol is made. Tobacco was another article in general use, and it was lamentable that members of the weaker sex were becoming addicted to smoking. Tobacco has been called by some old smokers their silent friend. It was bad in itself but it opened up the way to further evils. He said teachers had one thing in common with the rest of mankind—the common drudgery of life. After all, there was poetry in the drudgery of life, if one's heart was in one's work. Longfellow's village blacksmith worked away "toiling, rejoicing, sorrowing." There was inspiration for the teacher in the consciousness of a duty done; inspiration in the consciousness of developing powers of mind; inspiration in considering the results of their labors on the future welfare of the world; inspiration in considering the large stores of gratitude coming to him from the future time. Beautiful pictures of imagination rise up before him as he glances at his pupils. These are the future mothers of the land; these the statesmen, warriors, poets and scholars into whose hands must fall the sceptres now wielded by the great and good of the world. You gather material from different lands and different nations; gather the richness of the poets and philosophers from the ages; richness from the science of our day to prepare youth for the future and launch them on the sea of life. The Rev. Gentleman closed his eloquent and able address amidst hearty applause. Principal Millar gave a short discourse on "The relation of our school system to Christianity." This question was causing a good deal of discussion in the secular and religious press. He laid it down as a fact that Christianity was good for the people at large, and therefore it followed that it was good for the teacher. Our public school system was a compromise on the part of the state. It was the duty of parents to bring up their children in the principles of Christianity, and they should not surrender their children into the hands of any teacher until they knew their views would be carried out. The question is often asked, should Christianity be taught in our schools? Should our public men act in accordance with religious principles? Should you answer the latter question in the affirmative, the answer to the first is not far to seek. It is said by some that our schools should have nothing to do with religion. In one sense they have, and they have not. Every teacher gives a bias to the minds of his pupils, either for or against Christianity— if against, no Christian parent can allow his children under his care. Our schools are not religious schools but they are the schools of a Christian people, and their views should be carried out. Should teachers be members of a Christian church? Not necessarily, but their influence should be in favor of Christianity. He was not in favor of formal religious teaching in schools. This was the view held by the late Dr. Ryerson, to whom the country was greatly indebted for its excellent school system. The schools should open in the mornings by reading from the scriptures, and as a recognition of Christianity this was enough, as far as formality was concerned, The teacher's life is the main thing in wielding an influence in favor of religion. It is better than precepts. The religious press was agitating in favor of denominational schools. If our university and schools were what they should be, there need be no change. There is a marked inconsistency in the arguments used in this connection. It might be laid down as sound doctrine that what was right for a Citizen was right for a Christian. It is said that Christians should not interfere in elections—that if they did they would get morally soiled. This was erroneous, and if acted upon would be detrimental to the interests of the nation. Good men should take an interest in elections, and see that good men are elected to public positions- How can a Citizen vote for a man who is in favor of a National University, and at the same time as a Christian do all he can to kill it? If it is worthy of our support we should not try to weaken it. Some say we should have religious schools, where those who prefer could send their children. He was anxious, as all should be to advance religion and education, and thought the public schools were and ought to be of that character which entitled them to the support and patronage of all classes of Citizens. If he thought the National University was not conducted in the interests of Christianity he would pull it down. Our Roman Catholic Citizens have as much right as any other class of Citizens to have their wishes acceded to on this question. They wanted the schools under the church, but their views were objected to by the Protestants who wanted the schools under the State, and the separate school system was not established until after a severe struggle. Many Protestants were inconsistent in this matter, and the Catholics could truthfully tell those who patronized denominational schools, that their arguments did not coincide with their practices. This question was before the public and all teachers should give it their consideration. (Applause). Mr A. F. Butler, County Inspector, gave the next address. Some men had affirmed that he (Mr. B.) was a crank on two questions, viz: the Kindergarten system and poetry, There was poetry ever where. You could find it in the shop, in the field and in all avocations of life. He would give some comments on Longfellow's "Psalm of Life." He asked who were the "heroes in the strife" and drew a picture of Prince Napoleon dying in Zululand and contrasted Jennie Carroll, the actress, giving up her engagements to attend at the bedside of a divorced husband, deserted by every other friend, who was a total wreck and dying. She was not only an actress but a heroine, "Sublime" was a great word; but don't mistake its meaning. Honest labor is sublime, no matter what department of industry is considered—the forge, the carpenter's bench, or the field with its golden sheaves. Teaching is the sublimest of all occupations. It was not right to rob the mountain goats of herdsmen to make poor shepherds of men. Every man should follow that occupation for which he is best adapted. The press was a mighty power, and manufactured public sentiment. The recognition of women was in accordance with the sentiments of poetry. Mr. Butler's address was interspersed with quotations from celebrated poets; and as a *resumé* of an address of this kind does not do justice to the speaker, but a faint idea can be had of the rich treat enjoyed by those who are cultured in the "Divine Art," and heard the discourse last evening on the "Psalm of Life." On Friday morning the law regarding Teacher's Certificates and County Boards was handled by Mr. D. McLean of Crinan, who treated the subject of Cramming in Public Schools in a masterly manner; he attributed the growth of this evil to three causes: 1st. The pressure of Examinations; 2nd. The excess of Home-work; 3rd. Frequent change of Teachers. His remarks on Examinations called forth a lively discussion on the subject of County Promotion Examinations; the majority of those who expressed their views, thought that the uniformity etc. aimed at by these examinations was more than counter-balanced by the evils resulting from them. Mr. Dance of Fingal, in his well-written paper on Arithmetic, denounced our system of weights and measures as a great hindrance to progress in that subject. He advocated the introduction of the Decimal system. Mr. Clay dealt with the subject of Reading Books in Public Schools; he pointed out defects in the series now in use, and also features which should be possessed by the coming series. He moved, seconded by J. W. Cook, that a committee of three teachers be appointed in each township of the County, whose duty it shall be to call a meeting of teachers and others, in such township, for the purpose of expressing their views as to the merits of the different series of readers now placed before the Minister for authorization. The afternoon session was opened by Miss Watts taking up the subject of Drawing for Junior Classes. She maintained that besides being a source of employment and amusement the subject had a strong educative influence. Mr. Leitch explained some of the principal difficulties in Book-keeping, after which the Question Drawer was opened and many interesting points discussed by members of the Committee. A resolution embodying our respect for the memory of the late Dr. Ryerson and sympathy for the bereaved family was passed, as also a resolution in reply to an address from the Ministerial Association of the city, inviting our aid in the suppression of Intemperance and the use of Profane Language. The following officers were elected for the present year:—President, D. W. Dance; Vice-President, N. W. Ford; Rec. Sec., H. McDonald; Cor. Sec., A. F. Butler; Treasurer and Librarian, J. Cook.

HALTON.—Halton Co. Assoc. met at Palermo, on Feb. 23rd, 24th 25th. Meeting called to order, when Mr. Bonny led in prayer. Minutes and correspondence read by the Secretary, and on motion were approved. The President, Mr. R. Little, made some practical remarks in reference to institute work, and afterwards alluded to the death of the late Dr. Ryerson, late chief superintendent of education, in such a manner as to prove the high estimation in which he held the venerable gentleman. On motion a committee was appointed to prepare and submit to this association a resolution of condolence concerning the demise of the late Dr. Ryerson. *Librarian's Report.*—Showing that at present we have 165 books, as per catalogue; also 72 books presented by the Minister of Education, making in all 237 volumes. Books are in good condition. Two hundred and two books have been taken out. The classification of 165 volumes is as follows: Professional and books of reference, the latter embracing English, Science, Mathematics, Primers, Drawing, and Object Lessons. It is hoped that a greater interest will be taken in the Library by the teachers of the county. The President spoke in favor of teachers using the Library; said we were apt to

get into ruts; should read to see how others worked; read to gain knowledge, to develope the mind regularly. Teachers must have clear ideas of the work they have to do, and the Library was the best source from which to get the needed assistance. On motion of P. McLean, of Model School, Milton, N. J. Wellwood, B.A., Oakville H.S., Miss Mary Crooks, of Burlington, and R. Coates, of Norval, were appointed a committee to report on a set of Readers prepared and submitted by Mr. Gage for examination and approval. *Report.*—"Your committee on Text Books on Reading beg respectfully to report, that we are decidedly of opinion that in view of the increased attention that is now paid to the subject of reading, improved and more suitable text books are desirable. We are much pleased with the new series of Readers published by Messrs. Gage & Co., and consider that they embrace many new and excellent features, which must prove of very material aid to teachers and pupils in this important branch of study. On the whole we consider this series of Readers much superior to any that we have yet examined. All of which is respectfully submitted. (Signed.) P. McLean, Mary Crooks, N. J. Wellwood, R. Coates. Palermo, Ont., 24th Feb., 1882." Dr. McLellan then discussed the question, "Unitary Method v. Rule of Three." This was handled in a clear and practical manner, while Proportion was accorded a very prominent place, the U.M. was considered of far more practical utility. "Reading" was next introduced. The Dr. said it was too much neglected in the High Schools, probably because as it did not pay, and perhaps it did not receive sufficient attention in the Public Schools. The subject was pretty fully discussed. Attention was called to several points, as, Articulation, Enunciation, Expression; much stress was laid on clearly and distinctly uttering the consonants and short vowels, etc., etc. Teachers should set good models before their pupils, and encourage them to imitate. Always prepare lessons before coming to the class. The Treasurer's report was read, the balance from last year being $54.29. Grammar was next treated of, and many very good hints given for the benefit of teachers. The order of introducing the subject in its various stages was suggested. Would guard teachers against rendering fine poetical passages analytically. Mr. N. J. Wellwood, B.A., took up "Statics," and in a very clear and pleasing style pointed out the needful acquirements for its the successful study. This was followed by Mr. Husband, who read a carefully prepared paper on "Writing." This brought out some discussion about position, pen holding and methods to be followed when teaching young pupils. "Good Questioning and Bad," was very ably and forcibly handled by Dr. McLellan under the following heads. 1. Object of Questioning. 2. Qualifications of the Questioner. 3. Characteristics of the Questions. Many errors were pointed out, and proper remedies suggested. The committee to prepare a resolution of condolence to the bereaved family of Dr. Ryerson submitted the following:—*Resolved*, We, the Teachers of the County of Halton, in convention assembled, desire to express our heartfelt sympathy with the family of the late Rev. Dr. Ryerson, Chief Superintendent of Education for the Province of Ontario, in the irreparable loss they have sustained in his death. We, as Teachers, mourn the loss of our late venerable chief, whom we regard as pre-eminently the teacher's friend, and to his efforts attribute the greatly improved social position and professional efficiency of the teachers of this Province. As Canadians, also, we deplore the loss of one whose life-work, more than that of any other Canadian, has, we believe, conduced to the intellectual well-being of the Province of Ontario. We fondly hope this, his life-work, will ever remain the grandest and most imperishable monument of his untiring perseverance. A. Bonny, H. Husband, R. Coates. In the unavoidable absence of Mr. J. L. Hughes, Dr. McLellan lectured on Thursday evening to a full house. Subject: "This Canada of Ours." At the close the chairman, Dr. Buck, Reeve of the Township of Trafalgar, remarked, "If Dr. McLellan does *so well* for another person much may we expect from him when he appears for himself to-morrow night." H. M. Switzer, Esq., in most fitting terms, moved a vote of thanks to Dr. McLellan for his instructive, eloquent and patriotic lecture. Rev. A. Ferguson was the seconder. On the following evening we had an address on "The Teacher and Parent in Relation to Education." This if possible was the source of greater pleasure to the audience than that of the previous evening. Wm. McCraney, of Oakville, in moving a vote of thanks alluded to the lessons that he had himself received while listening that evening. Rev. W. Pirritte seconded the above, which was carried unanimously. The thanks of the H.C.T.A. were cordially tendered the people of Palermo for their generous hospitality to the teachers, and for providing conveyances free of charge to and from the R.R. stations, also to the trustees of the school house and to the trustees of the M.E. Church for the use of their commodious rooms, free of charge, for the daily session and evening lectures. A most pleasing feature of this convention was the attendance of all the leading persons in the neighbor hood, many coming six or eight miles to hear the papers read, and listen to the discussions. The ladies were present in no small numbers. One gentleman remarked that "I thought this convention was only a lot of the teachers gathered together to keep up salaries, etc., for themselves, but I find they never say salary; they talk of their work, and try to find the best ways to do it effectively." Next meeting in Burlington in September or October.—*Com.*

REVIEWS.

SCRIBNER'S GEOGRAPHICAL READER AND PRIMER. *Chas. Scribner's Sons, New York.*—This is a series of Journeys Round the World (based on Guyot's introduction), with Primary Lessons, and is intended to give zest to dry, geographical information, by means of interesting descriptions of leading features in the several countries supposed to be passed through. The beautiful engravings which illustrate the text, and the well-executed maps that are to be used with the exercises, serve to make the book attractive and useful. The aim of the work is, in Part I., to excite interest in the several countries described; and, in Part II., to give their commercial and political character—the physical features being noticed, generally, in the course of each "journey." As it is intended for primary work the amount of information given is not burdensome, but we should like to see important countries, such as Great Britain, France, Canada, &c., occupy more of the book than they do, and commensurate with their position in the civilized world. As a reading book on geography it is valuable, interesting, and attractive, and in opening up the subject it is practical and effective. Type, paper, and mechanical execution are of the high class which is characteristic of the publishing house of Chas. Scribner's Sons.

MAGAZINES.

THE CONTEMPORARY REVIEW for March has been received from Strahan & Co., 34 Paternoster Row, London. It contains the following articles:—'The Revised Version and its Assailants,' by F. W. Farrar, D.D.; 'Agricultural Depression,' by the Duke of Argyle; 'The Government of London,' by Sir Arthur Hobhouse; 'Monkerys,' by Alfred R. Wallace; 'Disestablishment in Scotland,' by Principal Rainy; 'The Financial Crisis in France,' by Auguste Vitre; 'Compensation to Irish Landlords, by Professor Leech; 'The Vistas of the Past,' 'The Earth and the Moon,' by R. A. Proctor; Land and Labor,' by Rev. W. H. Blackley; 'The Procedure of the House of Commons,' by J. E. Thorold Rogers, M.P.; 'Prof. Goldwin Smith As a Critic,' by Herbert Spencer; 'The Channel Tunnel,' by Lord Bradborne. *The Contemporary* is ably maintaining its place as one of the foremost periodicals of the day.

ST. NICHOLAS FOR APRIL opens with a charming frontispiece picture by Rosina Emmet, illustrating a timely little poem by Mary Mapes Dodge, entitled 'An April Girl.' Mrs. Abby Morton Diaz contributes 'The Story of Wangse Pah and the White Elephant,' an illustrated sketch of Siamese life. 'Lord Malapert of Moonshine Castle' is a bright comedy for children, by E. S. Broo s. The veracious legend of Mr. Weathercock' is given by 'Aunt Fanny' Barrow. Walter Satterlee has drawn four page-illustrations for some æsthetical stanzas, called 'Lament of the Cat-tail.' Dr. Eggleston's serial, 'The Hoosier Scho l-boy,' and the 'Recollections of a Drummer-boy,' by Harry M. Kieffer, are brought, all too soon, to their conclusions, in stirring and spirited instalments; and 'Donald and Dorothy' have a grand, good time in their 'House Pic-nic.' The illustrated 'Northern Myth' stories are continued with the legend of 'The Hoard of the Swarthy Elves.' Mary N. Prescott, Margaret Johnson, and Margaret Vandegrift are among those who contribute poems and sketches, and there are drawings by J. Wells Champney, Walter Shirlaw, Addie Ledyard, J. G. Francis, and Jessie McDermott.

THE CENTURY MAGAZINE.—The frontispiece of the number presents the strong, plain, and decidedly English face of Matthew Arnold, the original being the portrait by the painter G. F. Watts. This accompanies a biographical-critical study, by Mr. Andrew Lang, of Mr. Arnold's poetry and essays—the purely literary feature of the number. Of the serials: Mrs. Burnett makes a decided advance with her novel, 'Through One Administration;' the reader has a chance to correct some misapprehensions, Bertha goes to the Virginia mountains, and Mr. Amory gives his ideal of a woman lobbyist. Mr. Howell's 'Modern Instance' takes his young married couple to Boston, touches lightly on the foibles of young married people in general, and introduces Bartley to Boston journalism, which is to figure largely in later parts of the novel. The illustrated papers cover a good deal of ground. The third of Mrs. Mitchell's papers on sculpture is devoted to 'The Age of Praxiteles.' The subject is treated in an expository way, and is illustrated with beautiful engravings by Cole, Kruell, Miss Powell, Evans, Babcock, Shusler, and Tynan. More superb cuts of ancient art have probably never been made. The Hera head, the two cuts of the Hermes, and the Demeter, are the most striking. 'Some American Tiles,' is the title of a paper, by Frank D. Millet, descriptive of processes and results at the Chelsea (Mass.) Tile Works. The variety and beauty of these tiles may be seen in the drawings, and the rapid improvement in the American product may be inferred from the facts that, whereas a few years ago there was not a decorative tile made in the country, in 1880 these specimens took the gold medal at Crewe "over all the famous pottery manufacturers of the United Kingdom." The remainder of the body articles are light, and include a charming short story of New Mexico, 'Niñita,' by Thomas A Janvier, a writer who awakens large expectations by the distinct literary flavor and wide range of method he displays; 'The Blessings of Piracy,' by Edward Eggleston, a satirical treatment of the question of international copyright; and a paper on 'Oddities of Southern Life,' by Henry Watterson, who, after recalling much that was humorous and characteristic in the South of the day of 'Simon Suggs' and 'Major Jones' records some of the marked changes that have occurred, since the war, in the motives of society, concluding with a tribute to Southern women and the new Southern thrift. Poems are contributed by "H. H.," Ellen M. Hutchinson, Roger Riordan, Henry A. Beers, Henry Eckford, and Alice Wellington Rollins. 'T pics of the Time,' concludes a most readable number. The publication of Thomas Carlyle's 'Irish Journal" will begin in the May *Century*.

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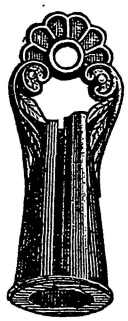

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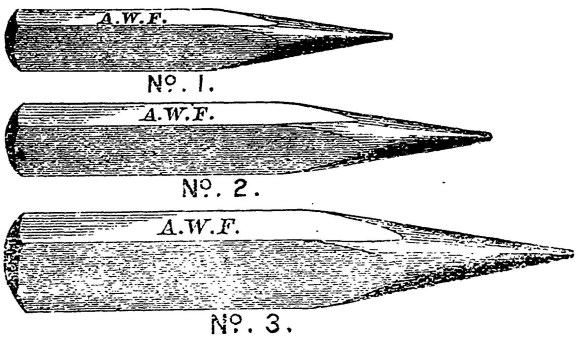

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The Canada School Journal.

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The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course unable to make any distinction in a list containing names from all parts of the United States and Canada.

INDUSTRIAL DRAWING.

We have much pleasure in calling the attention of our readers to Dr. Rand's letter which will be found *in extenso* on another page of this issue. The subject it deals with is one of the very foremost importance, as the facts cited by the writer, and others that could easily be referred to, conclusively prove. For example, a prominent Toronto merchant, who has returned recently from a visit to England, in giving an account of the state of trade and manufactures there spoke of the woollen industry as being in a prosperous condition everywhere except in Bradford and added that the manufacturers of that locality had determined, as a means of relief from depression, to establish very largely at their own expense a school of design. This resolution shows better than almost anything else could have done the progress made during the past twenty years in the appreciation of the art of drawing in connection with manufactures, and it forms a striking endorsation of the views put before the Finance Minister by Dr. Rand.

The vagaries of Oscar Wilde and his fellow-æsthetes are simply another sign of the times. There is going on everywhere a struggle for the realisation of higher ideals in the region of taste as well as in that of utility, and, crude and bizarre as are some of the notions of the school referred to, the votaries of sunflowers and dados are really helping on a very important work. Cost and enduring qualities being equal every one would naturally prefer an elegant article even of ordinary wear or of domestic use to an ill-fashioned or tawdry one, and the more educated the taste by contact with what is really refining the more marked does this preference become. A beautiful fire-screen or furniture cover is a "thing of joy" just because it is a "thing of beauty," and it is not surprising that the manufacturer of old fashioned tweeds or carpets should find it hard to dispose of them in competition with goods marked by beautiful colours and elegant patterns.

In the Province of Ontario something has been done during the past few years to diffuse a more general knowledge of industrial drawing, but as yet only the first steps have been taken. Fortunately we have a Government that is abreast of the times, and now that the School of Design, which has been kept going for some time under great difficulties, is to be transplanted to and taken under the special charge of the Education Department, we may expect much more rapid progress to be made. Every teacher who goes out with a license to teach should be compelled to acquire, as part of his professional training, at least an elementary knowledge of design and industrial drawing. There should be some place assigned to the subject in every school time-table, for it is impossible to say beforehand whether our great artists and designers will be found in cities or rural districts. Designing possesses this great advantage over every other kind of drawing, that it is a creating and not a mere copying process, and the power of fascination which it possesses in virtue of this fact renders it useful as a means of recreation in a school.

We are not in a position to say whether the representations of Dr. Rand are likely to be effective or not, but as it is currently reported that Mr. Walter Smith is open to an engagement in Canada it is very desirable that an effort should be made to induce him to begin here a work similar to that which he has carried on so successfully for many years past in Massachusetts. Canada has at least fairly entered upon what promises to be a comprehensive industrial career and her people may as well make up their minds at the outset that her status as a manufacturing country will depend very largely on the extent to which a knowledge of industrial drawing is diffused amongst the pupils attending her common schools. It seems feasible that Mr. Smith's services should be procurable by a retainer from the Dominion Government supplemented by additional sums from the Governments of such Provinces as chose to enjoy the benefits of his experience in organizing a system of industrial drawing in connection with their systems of education. The work of education is of course provincial in its character, but industrial education might well be made an exception. At all events we hope to hear of something being done as the result of the step Dr. Rand has taken and we hope to hear also of his action being endorsed by others who are interested in the work.

QUESTION DRAWER.

We propose to commence in the next number of the CANADA SCHOOL JOURNAL a department for correspondents who write to us for information on matters connected with school-work. We do not bind ourselves to answer all questions even when we have the facts at hand necessary to enable us to do so; in order to secure an answer the question should relate to some matter of general importance. Every question should be accompanied by the name, address, and occupation of the sender, not only as a guarantee of good faith but in order that we may communicate with him by letter if it should be desirable to do so.

QUEEN'S COLLEGE.

The closing exercises of the University of Queen's College, Kingston, have been, this year, more than usually interesting. The College has evidently started fairly upon a new stage of its career, and all who are interested in the work of higher education will bid her "God speed." The retirement of Dr. Williamson from the important position he has filled since the establishment of the institution means the loss to the College of his learning and experience, but it will at the same time afford the management an excellent chance of filling his place with a thoroughly vigorous man. Prof. Fletcher, who has just concluded his first session's work, was a decided acquisition, and it is to be hoped that the College will be equally fortunate in the new incumbent when they get a successor to Dr. Williamson. One incident cannot fail to attract the attention of every reader of the account we publish of the proceedings, that is, the public appearance of a young lady to receive a prize which she had won after keen competition with members of the sterner sex. Queen's has freely thrown open her doors to the ladies, and she will not lose anything by doing so. Other colleges will soon find themselves constrained to follow her example. Principal Grant's address, racy and almost audacious, was thoroughly characteristic of the man. After reading the published reports of it one need wonder no longer at the influence for good he exerts over the students who come in contact with him. Queen's, like other colleges, has her financial difficulties, but few other colleges are so fortunate in having at their heads men of such mental and physical energy as Principal Grant. If a way out of her difficulties is possible for Queen's he will soon find it.

GEOGRAPHY IN SCHOOLS.

Owing to frequent changes in the political condition of some countries, and to additions made from time to time to our knowledge of the physical features of others, the teacher is apt to find himself at a loss when he is required to go into details with his pupils. No country gives so much trouble in this respect as the one of which our knowledge should be most minute and accurate—the Dominion of Canada. We propose, therefore, to place before our readers from time to time geographical information collected from the most recent and most trustworthy sources, by way of supplement to what is contained in the ordinary text books on geography. Much of what appears in our notes on the subject will be accessible in the newspaper press, but it very often appears there subject to corrections afterwards made, and at all events it will, we trust, be found convenient to have the facts put in as compendious and systematic a form as possible. We commence this month with a few facts relating to the route and present condition of the most interesting and important of our great public works, the Canada Pacific Railway, the information given being gathered entirely from official documents and from the statement made recently in Parliament by the Minister of Railways and Canals.

GEORGE PAXTON YOUNG, LL.D.

In doing honour to Professor Young Queen's College has done honour to herself, for he is one of those men—as rare in the field of education as in that of statesmanship—who confer distinction on titles of honour. He has attained to the very foremost rank of Canadian scholars by dint of his own ardent pursuit of learning rather than as the result of early training, for his collegiate course in Scotland was not marked by any extraordinary pre-eminence. For ten years he has been lecturing to crowded classes in University College on Mental and Moral Philosophy with distinguished success, and for the same length of time he has filled the important position of Chairman of the Central Committee of the Education Department of Ontario with great advantage to the cause of education. As a thinker he is original and profound; as a teacher he is lucid in his expositions and enthusiastic in his work; as a man he is singularly free from those faults of manner and temperament which so frequently prevent otherwise great men from being fully appreciated. It will be the earnest hope of all who know him that Dr. Young may long continue to fill the double sphere of practical usefulness he has filled for a decade past, and to reflect increasing honour on one College by wearing its degree, and on another by taking an important part in the training of its students.

TEACHING TEMPERANCE IN SCHOOL.

As the desirability of having temperance taught in Public Schools has been recognized by the Minister of Education, the following quotation from Dr. Richardson's address to teachers on the subject, in Exeter Hall, will be of interest:—

"We will tell the truth on this subject, and we will teach it; but if there is a class of the community that can tell this truth most forcibly, a class upon whom this duty devolves more than upon all others together, it is the school-master and school-mistress class. They hold the keys of this mystery of infamy. They are the teachers of the millions that are to be. Upon their act and word may hereafter depend everything that may eventuate in the life of an individual. I want to urge you who are not already engaged in our cause to make it yours, and in yourselves to implant the lessons of complete temperance, absolute temperance, absolute abstinence from the cause of this evil. Nothing else will do, or carry force. You must cut off this evil thing and show its uselessness and injury. Then as to the way in which you should proceed. I do not think it is of much service to begin with the youngest children. Their little minds are best let alone, and the same may often be said of persons more advanced in life, who should be allowed to lead up to the argument themselves. Let children begin to feel and to know that there is something wrong in the drink, and then is your opportunity to commence. The points most important to explain are the nature of this drink, what it is, that it is not a drink in itself, but a purely artificial something in water. Tell them how it exists, when it was first discovered, how it is made, and what it is. Then it is important to show them that there is not one alcohol only, but a family of them, that certain of these alcohols would kill directly, and that by a mere accident one of them came into common use. You can then show the evils that spring from it, the laws framed against it, as well as the proverbs against it. To more advanced

scholars, the relation of this substance to food may be explained, that it does not belong to the category of foods at all, and it is fallacious to think that it imparts warmth. But the great lesson of all will be taught by your own abstaining example. You will, as abstainers, have in your work serener minds, and minds less inspired to inflict punishment, and more thoroughly inspired to create peaceable and powerful impressions on those around you, than if you took into your system, even in moments of languor, this pernicious and mortal enemy."

FASHIONS IN SCHOOL.

The New World has little trouble with fashions or class distinctions of any kind. In an American city it is possible to see barefoot boys going to the same school with children who are driven in luxurious carriages and attended by liveried footmen. The notions of some school boards in "Merrie" England are more strict in regard to customs, dress, &c. Even the apparently unimportant question of the method of wearing the hair has recently led to the rejection of pupils by at least two school boards, and in one case to litigation and the punishment of a refractory and determined parent, who threatened the complete overthrow of the school system in his district by sending his daughter to school with her hair in curl papers. She was refused admission, and her father was actually fined by an intelligent (?) magistrate because she was not at school,

Another young lady of sixteen was prohibited by a school board in Cornwall from attending school because she wore her hair fringed on her forehead. There would be a great many vacant seats in American schools if a similar rule were adopted in this country. We are almost afraid to think of the number of teachers who would have to resign if Cornish rigidity should be introduced into America. British liberty is a great blessing. What is the use of a Constitution, if it cannot prevent the introduction of curl papers and fringes into school.

—The question of remuneration to public school inspectors is one that should receive more liberal treatment from county councils than is generally accorded to it. The work done by energetic men in the position of Dr. Agnew who has charge of the whole county of Frontenac and Mr. Burrows whose district includes Lennox and Addington, involves a great deal of physical discomfort and hardship. Both of these gentlemen have to travel through long distances and over bad roads in the discharge of their duty as their districts include townships that have been only recently settled. The legal remuneration is ten dollars a school, but an inspector who has the oversight of such a district is worth more than the minimum allowed by law. No inspector is allowed to take charge of more than a certain number of schools even if there are more in his county, and this provision, proper enough in itself, limits his emoluments to a comparatively small sum. The remedy for a state of affairs which has existed too long lies in the hands of the county councils who in order to secure good men for the position should be willing to pay reasonable salaries and make liberal allowances for travelling expenses.

—The matter of appointing a conductor of teachers' institutes for the Province has been recently discussed in more than one teachers' convention. The creation of such an office is in the interest of Education very much to be desired. That the presence of some experienced educationist is needed at every institute is shown by the prevalent practice of inviting those who may happen to be available, but it is not possible in all cases to secure such aid and when secured it is not always so valuable as would be the assistance of one who made the working of teachers' institutes a special study. The institute is now a fixed and important feature of our school system, diffusing amongst those who have not had the benefit of long professional training some insight into recent methods, and enabling the most expert to improve themselves by the interchange of ideas. Any proposal calculated to make it still more useful to the teacher is well worthy of the attention of the Education Department.

Geographical Notes.

THE CANADA PACIFIC RAILWAY.

The term "Canada Pacific Railway" has hitherto been a some what vague one, since up to a comparatively recent period the line had no fixed terminus at either end, while the route, except in a few short sections, was not absolutely determined. During the past twelve months considerable progress has been made in settling the final location of the main line and some of its more important branches, and the work of construction is now going on at several points. The franchise of the whole road, with power to build branches, was transferred a year ago by the Government of the Dominion to a private Company, but part of the work of construction is still, and will continue for some years, under Government auspices and be carried on at the public expense.

The western terminus of the main line has been settled for the present at Port Moody, on Burrard Inlet, near the mouth of Fraser River. The eastern terminus was formely fixed at Callander, near the east end of Lake Nipissing, but during the past year it has by the amalgamation of the Canada Pacific with other lines been virtually transferred to Montreal. As Montreal harbour is open for navigation only in summer, the company will no doubt seek a winter port terminus somewhere on the Atlantic sea-board, the places most frequently mentioned in this connection being St. John in New Brunswick, Portland in Maine, and Boston in Massachusetts.

The extension of the Canada Pacific from Callander to Montreal has been partly effected by amalgamation with the Canada Central, which connects Ottawa city and the town of Brockville with the valley of the Upper Ottawa. This line has been running for many years as far north as Pembroke, and will be opened for traffic to Callander within the next few months. The extension from Ottawa to Montreal is intended to be effected by means of the western section of the Quebec, Montreal, Ottawa, and Occidental railway, which has been purchased by the Canada Pacific Company from the Quebec Government. At present the whole of that part of the road east of Callander goes by the title of the "Eastern Section."

The route of the main line from Callander westward has been located as far as Algoma Mills, a port on the north shore of the Georgian Bay midway between Bruce Mines and Spanish River. It passes to the northward of Lake Nipissing running up the valley of the Sturgeon River and down that of the Spanish River to a point

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near the mouth of the latter. It then skirts the shore of the Georgian Bay to Algoma Mills, which will be for some time the western limit of the work of construction. Part of the section between Callander and Algoma Mills is under contract and the whole line from Montreal to the latter point will probably be in operation in a few months.

From Algoma Mills westward the main line will probably be continued around Lake Superior and as close to the Lake as engineering considerations will admit of, the country being rocky and construction difficult. At the east end of the lake it will pass within twenty or thirty miles of Sault Ste Marie, and at the west end it will connect with what is known as the Thunder Bay branch at some point on the latter not yet fixed, but from present indications the junction will be close to the terminus at Prince Arthur's Landing.

The Thunder Bay branch, including the whole of the section between Lake Superior and Red River will henceforth be part of the main line. It has been under construction for several years past and will be ready for the carriage of passengers and freight after the first of July next, though the work of ballasting will not be completed till the summer of 1883.

It was originally intended that the crossing of the Red River should be at Selkirk, and that the main line should cross the narrows of Lake Manitoba and take a northerly route by way of Battleford and Edmonton to the Yellow Head pass of the Rocky Mountains. The idea of crossing at Selkirk has been temporarily, if not finally, adandoned and a railway bridge has been built at Winnipeg. The part of the Pembina branch between Winnipeg and Selkirk thus becomes part of the main line which now runs westward from Winnipeg by way of Portage la Prairie to Brandon where it crosses the Assineboine River. Brandon, according to the official map issued by the Canada Pacific Company, is some three or four miles east of the 100th meridian, and from this point to Winnipeg and Emerson the road is open for traffic.

From Brandon westward the main line has been definitely located up the valley of the Qu'Appelle River, on the south side of the latter, as far as Moose Jaw Creek. This is a small tributary of the Qu'Appelle from the south, and it is crossed about midway between the 105th and 106th meridians. The Company have applied to Parliament for leave to substitute the Kicking Horse for the Yellow Head pass, and pending the completion of the explorations in the Rocky Mountains it has been agreed to finally locate no more of the road until it is ascertained whether the proposed route is easible.

The Kicking Horse Pass lies a few miles north of the 51st parallel of latitude, while Kamloops Lake, on the west side of the Rocky Mountains, lies about the same distance south of it. Should this pass receive the final approval of the Government, the main line will be continued westward from Moose Jaw Creek across the South Saskatchewan, between the Calgarry and Old Bow forts, and through the Rocky and Selkirk Mountain ranges to connect with the section now under construction in British Columbia between Kamloops and Yale. Between the last named two points—or rather between Savona's Ferry, near the east end of Kamloops Lake and Emory's Bar near Yale—the line follows very closely the valleys of the Thompson and Fraser rivers. A few weeks ago the contract for the construction of the remainder of the main line—namely, from Emory's Bar to Port Moody—was let by the Government. The route lies for some distance south of Yale on the west side of Fraser River, and then crosses it so as to reach Port Moody, which is some miles north of the mouth of the Fraser. There will probably be a branch to connect New Westminister with the main line.

The new branches of the Canada Pacific at present are: (1) a line into Sault Ste Marie from Algoma Mills; (2) the Pembina branch from St. Boniface to Emerson, east of the Red River; (3) the Winnipeg and Pembina Mountain branch from Winnipeg west of Red River to Smuggler's Point—which is on the United States frontier, about thirteen miles west of Emerson—with a westernly extension to the Souris River running fifteen miles north of the frontier; (4) the Brandon and Souris branch from Brandon south westerly to a point on the western boundary of Manitoba about fifteen miles north of the frontier, with a westerly extension parallel to the boundary line as far as the 109th meridian; and (5) the Winnipeg and Stonewall branch. The Pembina branch has been in operation for two years past. The Winnipeg and Pembina Mountain branch is largely graded and the work of track-laying has been commenced. The other branches are merely located. Several branches northward from the main line have been projected, but they are not yet finally located, or accepted by the Government.

Adopting the Kicking Horse Pass the length of the main line from Montreal to Port Moody is 2950 miles. The following table of approximate distances is computed from the reports of the Minister of Railways, and is given subject to corrections made as the result of more accurate measurements hereafter:—

MAIN LINE.	
Montreal to Port Moody	2950 miles.
Montreal to Ottawa	120 "
Ottawa to Callendar	235½ "
Callander to Prince Arthur's Landing	650 "
Prince Arthur's Landing to Winnipeg	434 "
Winnipeg to Portage la Prairie	53½ "
Portage la Prairie to Brandon	74 "
Brandon to Moose Jaw Creek	275½ "
Kamloops to Port Moody	215 "
BRANCHES.	
Carleton Place to Brockville	45½ "
Algoma Mills to Sault Ste Marie	50 "
St. Boniface to Emerson	64 "
Winnipeg to Stonewall	20 "
Winnipeg and Pembina Mountain branch	220 "
Brandon and Souris branch	195 "

In connection with the above or any subsequent geographical sketch any further information, so far as the facts are obtainable, will be cheerfully given to any correspondent who applies for it.

Mathematical Department.

UNIVERSITY OF TORONTO.

JUNIOR MATRICULATION—1881.

PROBLEMS.—HONORS.

1. If a straight line terminated by the sides of a triangle be bisected, no other line terminated by the same two sides can be bisected in the same point.

2. If two equal circles be described cutting each other in A and B, and from A a chord be drawn cutting them in C and D, prove that the part CD between the circumferences will be bisected by the circle described on AB as diameter.

3. Circles are described on two of the sides of a triangle as diameters, and each meets the perpendicular from the opposite angular point on its diameter in two points; prove that these four points lie on a circle whose centre is at the intersection of the two sides.

4. Prove that $$\frac{a^2\left(\frac{1}{b}-\frac{1}{c}\right)+b^2\left(\frac{1}{c}-\frac{1}{a}\right)+c^2\left(\frac{1}{a}-\frac{1}{b}\right)}{a\left(\frac{1}{b}-\frac{1}{c}\right)+b\left(\frac{1}{c}-\frac{1}{a}\right)+c\left(\frac{1}{a}-\frac{1}{b}\right)}=a+b+c.$$

5. If $x+y+z=xyz$ prove that—

$$\left(\frac{x}{y}+\frac{y}{x}+\frac{y}{z}+\frac{z}{y}+\frac{z}{x}+\frac{x}{z}+2\right)^2=(1+x^2)(1+y^2)(1+z^2).$$

6. Solve the equations—

$$x+y+z=2(a+b+c).$$
$$ax+by+cz=2(ab+bc+ca).$$
$$(b-c)x+(c-a)y+(a-b)z=0.$$

7. A waterman rows a given distance a and back again in b hours and finds that he can row c miles with the stream in the same time as d miles against it. Find the time each way and the rate of the stream.

8. ABC is an isosceles triangle, D the middle point of the base BC. If any straight line drawn through D meets one side in E and the other produced in F, then AE, AC, AF are in harmonic progression.

9. Given $\tan^2 x+\sec 2x=\frac{7\sqrt{3}-10}{\sqrt{3}}$, find x.

10. If A_1, B_1, C_1, be the angles which the sides of a triangle subtend at the centre of the inscribed circle, prove

$$4\sin A_1 \sin B_1 \sin C_1=\sin A+\sin B+\sin C.$$

11. If $\cos^2\theta=\frac{\cos\alpha}{\cos\beta}$, $\cos^2\theta_1=\frac{\cos\alpha_1}{\cos\beta}$ and $\frac{\tan\theta}{\tan\theta_1}=\frac{\tan\alpha}{\tan\alpha_1}$, prove that

$$\tan\frac{\beta}{2}=\tan\frac{\alpha}{2}\tan\frac{\alpha_1}{2}.$$

12. If $\cos\theta=\tan\lambda\cot\alpha$, $\cos\varphi=\tan\lambda\cot\beta$, and $\sec\theta\sec\varphi=\sec\lambda\tan\theta\tan\varphi-\tan\alpha\tan\beta$; show that $\cos^2\lambda=\cos^2\alpha\cos^2\beta$.

13. Four points, moving each at a uniform speed, take 198, 495, 891, 1155 seconds respectively to describe the length of a given straight line. Supposing them to be together at any instant at the same end of the line, and to move in it continually from end to end, what interval of time will elapse before they are together at the same point again?

SOLUTIONS TO PROBLEMS.

1. Let DE be terminated by the sides of any $\triangle ABC$. Through K, its middle point, let if possible, another line FG be drawn, also bisected in K. Then as in I. 16, $\angle FDK=\angle KEG$ $\therefore$ AB is parallel to AC, and ABC is not a $\triangle$ red. ad. ab. Thus FKG is not bisected in K, and FG is any line drawn through K and terminated by AB and AC.

2. Let AKB, the semi-circle on AB, cut CD in K, then K is the middle point of CD. For $\angle$ at $C=\angle$ at D. (III. 28 and 26).

$\angle$'s at K are rt. $\angle$'s. (III. 31).

$\therefore$ BKC is congruous with $\triangle BKD$.

i.e. $CK=KD$.

3. Let PRS be the given $\triangle$. Take PR and PS for the diameters of two circles, cutting PS in N and PR in M respectively. Then PNR and PMS are semi-circles. $\therefore$ RN and SM are the perpendiculars on the sides PS and PR. Produce RN and SM to meet the circles in C and D. Then, if the circles cut these perpendiculars in A and B, a circle will go round the figure $ABCD$.

The $\triangle$'s RMO and SNO are similar—

$\therefore$ $RO:OM=SO:ON$,

$\therefore$ Rect. $RO.ON=SO.OM$,

i.e. Rect. $DO.OB=AC.OC$, (III. 35.)

$DO:OA=CO:OB$, and $\angle DOA=\angle COB$.

Hence (VI. 6.) $\triangle DOA$ is equiangular with $\triangle COB$, *i.e.* angle D=angle C.

Now if a circle be described so as to pass through the points A, B, C, (IV 5), D will be on the circumference of that circle. For if not it is either within or without the circumference. If within, produce AD to meet the circle at E, then the angle $ADB>AEB$ (I. 21.), $\therefore>ACB$ (III. 21.) *i.e.* D is both = and > C, hence D does not fall within the circle. Similarly we may show that it does not fall without. Hence D is on the circumference of the circle through A, B, and C.

Since P is the intersection of two lines which bisect two chords at right angles (III. 3.) P must be the centre of the circle $ABCD$.

4. The Numerator and Denominator are symmetrical expressions. The Numerator is of 0 dimensions and the Denominator of -1 dimensions. Hence their quotient must be one dimension and must involve a, b, c symmetrically. The only such quantity is $a+b+c$. But there may be some numerical factor. To find this put given fraction $=K(a+b+c)$, where K is some number independent of a, b, c. Put $a=1$, $b=2$, $c=3$, and we get $6=6K$ or $K=1$.

$\therefore$ Fraction$=(a+b+c)$.

5. We have left hand side—

$$=\left\{\frac{x+y+z}{y}+\frac{x+y+z}{x}+\frac{x+y+z}{z}-1\right\}^2$$

$$=\left\{\frac{xyz}{y}+\dots\dots\dots\dots\dots\dots\right\}^2$$

$$=\{xz+yz+xy-1\}^2$$

$$=1+x^2z^2+y^2z^2+x^2y^2+2xyz(x+y+z)-2xz-2yz-2xy.$$
$$=1+x^2z^2+y^2z^2+x^2y^2+x^2y^2z^2+(x+y+z)^2-2xz-2yz-2xy.$$
$$=1+x^2+y^2+z^2+x^2z^2+y^2z^2+x^2y^2+x^2y^2z^2=(1+x^2)(1+y^2)(1+z^2).$$

6. (1). $x+y+z=2(a+b+c)$.

(2). $ax+by+cz=2(ab+bc+ca)$.

(3). $(b-c)x+(c-a)y+(a-b)z=0$.

Observing that $(b^2-c^2)+(c^2-a^2)+(a^2-b^2)$ would $=0$, we see that the values $x=b+c$, $y=c+a$, $z=a+b$, satisfy (3), It is easily seen that these values also satisfy (1) and (2) and hence are roots. There are no other roots since the equations are all of one dimension.

7. Let r_1, r_2=rate down, rate up, and r_3=rate of stream per hr.
Also t_1, t_2=time " time "

Then we have $\frac{r_1}{r_2}=\frac{c}{d}$ $\therefore$ $\frac{t_1}{t_2}=\frac{d}{c}$.

Divide b hrs. in the ratio of $d:c$, and we get—

$$t_1=\frac{bd}{c+d},\quad t_2=\frac{bc}{c+d}.$$

$$\therefore\quad r_1=\frac{a(c+d)}{bd},\quad r_2=\frac{a(c+d)}{bc}.$$

$$\text{And}\quad r_3=\frac{r_1-r_2}{2}=\frac{a(c^2-d^2)}{2bcd}.$$

We may verify our results by putting $a=48$ miles, $b=10$ hrs., $c:d=3:2$, when $r_1=12$, $r_2=8$, and $r_3=2$ as it should.

8. $\triangle ABC$ is isos., D the middle point of BC, DF any line cutting AC in E, and meeting BA produced in F. Then AE, AC, and AF are in $H.P.$ Draw $AG \parallel$ to BC, meeting DF in G. Then AGE and DEC are similar $\triangle$'s. $\therefore$ $DE:DC=GE:GA$.

Also $\triangle$'s AFG and BDF are similar, and $BD=DC$.

$\therefore$ $DC:DF=GA:GF$. Then, *ex æquali*, (V. 23.)

$DE:DF=GE:GF$.

Hence the line DF is divided harmonically in E and G.

i.e. FG, FE, and FD are in $H.P.$

But $FG:FE=AF:AH=AF:AE$, HE being $\parallel$ to BC.

Also $FG:FD=AF:AB=AF:AC$.

Thus $FG:FE:FD=AF:AE:AC$, and they are in $H.P.$

9. $\tan^2 x+\sec 2x=7-\frac{10}{3}\sqrt{3}$,

$$=\frac{1-\cos 2x}{1+\cos 2x}+\sec 2x$$

$$=\frac{\sec 2x-1}{\sec 2x+1}+\sec 2x.$$

$$=(\sec 2x+1)-\frac{2}{\sec 2x+1}.$$

Write K for $\sec 2x+1$ and

$$K-\frac{2}{K}=7-\frac{10}{3}\sqrt{3},$$

$$\therefore\quad K^2-(7-\frac{10}{3}\sqrt{3})K-2=0.$$

$\therefore \quad K=1+\frac{2}{3}\sqrt{3}$, or $6-4\sqrt{3}$, which gives

$\therefore \quad \sec 2x+\frac{2}{3}\sqrt{3}$,

$\therefore \quad 2x=30^\circ. \quad x=15^\circ.$

10. $A_1=180-\frac{1}{2}B-\frac{1}{2}C=90+\frac{1}{2}A$, since $\frac{1}{2}A+\frac{1}{2}B+\frac{1}{2}C=90$.
$B_1= \quad 90+\frac{1}{2}B.$
$C_1= \quad 90+\frac{1}{2}C.$

$$\begin{aligned}\therefore 4\sin A_1\sin B_1\sin C_1 &= 4\sin(90+\tfrac{1}{2}A)\ \&c.\\ &=4\cos\tfrac{1}{2}A\cos\tfrac{1}{2}B\cos\tfrac{1}{2}C.\\ &=(2\cos\tfrac{1}{2}A\cos\tfrac{1}{2}B)\,2\cos\tfrac{1}{2}C.\\ &=\{\cos\tfrac{1}{2}(A-B)+\cos\tfrac{1}{2}(A+C)\}2\cos\tfrac{1}{2}C.\\ &=\cos\tfrac{1}{2}(A-B)2\cos\tfrac{1}{2}C+\cos\tfrac{1}{2}(A+B)2\cos\tfrac{1}{2}C.\\ &=(\sin A+\sin B)+\sin C.\end{aligned}$$

11. From data we have—

$$\frac{\sec^2\theta-1}{\sec^2\theta_1-1}=\frac{\dfrac{\cos\beta}{\cos\alpha}-1}{\dfrac{\cos\beta}{\cos\alpha_1}-1}$$

$$\text{or } \frac{\tan^2\theta}{\tan^2\theta_1}=\frac{\cos\beta-\cos\alpha}{\cos\beta-\cos\alpha_1}\times\frac{\cos\alpha_1}{\cos\alpha}=\frac{\tan^2\alpha}{\tan^2\alpha_1} \text{ per data.}$$

$$\frac{\cos\beta-\cos\alpha}{\cos\beta-\cos\alpha_1}=\frac{\sin^2\alpha}{\cos^2\alpha}\cdot\frac{\cos^2\alpha_1}{\sin^2\alpha_1}\cdot\frac{\cos\alpha}{\cos\alpha_1}=\frac{\sin^2\alpha\cos\alpha_1}{\cos\alpha\sin^2\alpha_1}.$$

$$\frac{\cos\beta-\cos\alpha}{\cos\alpha_1-\cos\alpha}=\frac{\sin^2\alpha\cos\alpha_1}{\sin^2\alpha\cos\alpha_1-\cos\alpha\sin^2\alpha_1}.$$

$$\text{Whence } \cos\beta=\frac{\cos^2\alpha\sin^2\alpha_1-\sin^2\alpha\cos^2\alpha_1}{\cos\alpha\sin^2\alpha_1-\sin^2\alpha\cos\alpha_1}$$

$$=\left(\frac{\cos^2\alpha}{\sin^2\alpha}-\frac{\cos^2\alpha_1}{\sin^2\alpha_1}\right)\div\left(\frac{\cos\alpha}{\sin^2\alpha}-\frac{\cos\alpha_1}{\sin^2\alpha_1}\right)$$

$$=\left(\frac{1-\sin^2\alpha}{\sin^2\alpha}-\frac{1-\sin^2\alpha_1}{\sin^2\alpha_1}\right)\div\left(\frac{\cos\alpha}{1-\cos\alpha}-\frac{\cos\alpha_1}{1-\cos\alpha_1}\right)$$

$$\text{or } \cos\beta=\frac{\cos\alpha-\cos\alpha_1}{1+\cos\alpha\cos\alpha_1}$$

$$\frac{1-\cos\beta}{1+\cos\beta}=\frac{1-\cos\alpha-\cos\alpha_1+\cos\alpha\cos\alpha_1}{1+\cos\alpha-\cos\alpha_1+\cos\alpha\cos\alpha_1}$$

$$=\frac{(1-\cos\alpha)(1-\cos\alpha_1)}{(1+\cos\alpha)(1+\cos\alpha_1)}$$

i.e. $\tan^2\frac{1}{2}\beta=\tan^2\frac{1}{2}\alpha\tan^2\frac{1}{2}\alpha_1$.

or $\tan\frac{1}{2}\beta=\tan\frac{1}{2}\alpha\tan\frac{1}{2}\alpha_1$, Q.E.D.

12. $\cos\theta=\tan\lambda\cot\alpha$

$\therefore \quad \sec\theta=\cot\lambda\tan\alpha$, and by symmetry

$\sec\varphi=\cot\lambda\tan\beta$,

$$\therefore \quad \sec\theta\sec\varphi=\cot^2\lambda\tan\alpha\tan\beta=\frac{\cos^2\lambda}{1-\cos^2\lambda}\tan\alpha\tan\beta \qquad \text{(A.)}$$

Again $\sec^2\theta-1=\cot^2\lambda\tan^2\alpha-1$

$$\text{i.e.} \qquad \tan^2\theta=\frac{\cos^2\lambda(1-\cos^2\alpha)}{\cos^2\alpha(1-\cos^2\lambda)}-1=\frac{\cos^2\lambda-\cos^2\alpha}{\cos^2\alpha(1-\cos^2\lambda)} \qquad \text{(B.)}$$

$$\text{and by symmetry} \qquad \tan^2\varphi=\frac{\cos^2\lambda-\cos^2\beta}{\cos^2\beta(-\cos^2\lambda)} \qquad \text{(C.)}$$

Substituting (A), (B), (C) in the third relation transposed, and then squaring we have—

$$\left(\frac{\cos^2\lambda}{1-\cos^2\lambda}+1\right)^2\tan^2\alpha\tan^2\beta=\sec^2\lambda\tan^2\theta\tan^2\varphi$$

$$\therefore \quad \frac{(1-\cos^2\alpha)(1-\cos^2\beta)}{\cos^2\alpha\cos^2\beta(1-\cos^2\lambda)^2}=\frac{(\cos^2\lambda-\cos^2\alpha)(\cos^2\lambda-\cos^2\beta)}{\cos^2\alpha\cos^2\beta\cos^2\lambda(1-\cos^2\lambda)^2}$$

$$\therefore \quad \cos^2\lambda(1-\cos^2\lambda)=\cos^2\alpha\cos^2\beta(1-\cos^2\lambda)$$

or $\quad \cos^2\lambda=\cos^2\alpha\cos^2\beta$. Q.E.D.

12. If the words "together at the same point again" mean at the same end of the line from which they started, then it is plain that each point must travel some multiple of twice the length of the line. Hence the time required is=L.C.M. of twice the times=124740 seconds. But if the words mean the point at which they are all first together, the required time is=L.C.M. of the times=62370 seconds.

ELEMENTARY ALGEBRA.

As many of our readers are pursuing this science, without the advantage of having experienced teachers, and as the majority of elementary text-books exhibit nothing but mechanical methods, we have thought that it would be well to give some examples of methods likely to be of service to junior students preparing for examinations.

1. If $a=\frac{1}{2}$, $b=\frac{1}{3}$, $c=\frac{1}{4}$ and $x=o$.

Find the value of $\dfrac{a^2-b^2}{x}-\dfrac{b^2-c^2}{x^2}$.

The first term = finite quantity $\div\ o=\infty$

" second term is infinitely > first term $\because x^2$ is infinitely $< x$

$\therefore$ first term − second term $=-\infty$

N. B.—We have taken 0 to mean, not nonentity, but a "quantity less than any assignable quantity."

2. If $x=\dfrac{1}{y}=\dfrac{1}{z}=o$; find the value of

$$2xy+\frac{z}{2x}+\frac{x}{z}+\frac{2y}{x}-\tfrac{3}{2}\left(\frac{x}{z}+y\right)\left(\frac{x}{y}+z\right)$$

We have $y=z=\dfrac{1}{x}$ Substitute this value for y and z and

$$\text{expression}=2-\frac{1}{2x^2}+x^2+\frac{2}{x^2}-\tfrac{3}{2}\left(x^2+\frac{1}{x}\right)\left(x^2+\frac{1}{x}\right)$$

$=2$, since $x=0$.

3. Simplify $(a+b-2c)^2+(a+c-2b)^2+(b+c-2a)^2$.

Observe that $6a^2$ is part of the result, and that $-6ab$ is also part of it, $\therefore$ by symmetry $6\ (a^2+b^2+c^2-ab-bc-ca)$ is the whole result. For a, b, c will be similarly involved in the result, which must consist entirely of squares and double products, by which we mean products having 2 as one factor, and ab, bc &c for the other.

4. Find the sum of $(a+b+c)(x+y+z)+(a+b-c)(x+y-z)+(a-b+c)(x-y+z)+(-a+b+c)(-x+y+z)$.

$ax+ay+az+bx+by+bz+cx+cy+cz.$

$$\begin{array}{cccccccccc} + & + & - & + & + & - & - & - & + \\ + & - & + & - & + & - & + & - & + \\ + & - & - & - & + & + & - & + & + \end{array}$$

Sum $=4ax+4by+4cz$.

The second, third and fourth terms are written down at once from the first term by changing the sign of every term that contains only one of the negative quantities. Thus the second term is derived from the first by changing c into $-c$ and z into $-z$. Hence to get the second product we make the same changes in the first product. But $(-c)(-z)=+cz$, hence we only change the sign when a single one of the quantities enters into the product.

5. The product of three consecutive even numbers is divisible by 48.

Suppose $2n$, $2n+2$, and $2n+4$ are the numbers.

Product $=8n(n+1)(n+2)$.

Now one of every three consecutive numbers is evidently a multiple of 3, and one a multiple of 2, $\therefore$ product is divisible by 6, and hence on the whole by 8×6, or 48.

6. The sum of three consecutive odd numbers, increased by 1, is always divisible by 12, but never by 24.

Let numbers be $2n-1$, $2n+1$, $2n+3$.

Sum of squares $+1=12n^2+12n+12$

$=12\{n(n+1)+1\}$.

Now one of the two, n and $n+1$ is even. Hence, $n(n+1)$ is even, and $n(n+1)+1$ is odd.

$\therefore$ Expression = 12 times an odd number, and cannot be a multiple of 24.

7. Simplify $(a+b+c)^2+(a+b-c)^2+(a+c-b)^2+(b+c-a)^2$.

See number 3. $a^2+a^2+a^2+a^2=4a^2$

$2ab+2ab-2ab-2ab=0.$

$\therefore$ Answer $=4(a^2+b^2+c^2)$.

8. Simplify $(ax+by+cz)^2+(ax+cy+bz)^2+(bx+ay+cz)^2$
$+(bx+cy+az)^2+(cx+ay+bz)^2+(cx+by+az)^2$.

[N.B.—Observe the symmetry. Only a, b, c are permuted. If we write a, b, c in circular order, thus $c\begin{matrix}a\\b\end{matrix}$, starting with a, we may read off a, b, c and a, c, b, the coefficients of the first two terms. Similarly, starting from b and from c, we can read off the other four sets of coefficients. Or, notice that if we change a into b, b into c, and c into a, the first term and the fifth change places, also the second and the third, and the fifth and the sixth, so that the expression remains as at first. This is the proof of symmetry, which in the present example was patent enough without testing, though it does not always happen to be so manifest by mere inspection.]

Looking at the perfect squares, and also at the double products, we see that $2a^2(x^2+y^2+z^2)+4ab(xy+yz+zx)$ is part of the result. Hence by symmetry

$$2(a^2+b^2+c^2)(x^2+y^2+z^2)+4(ab+bc+ca)(xy+yz+zx)$$

is the whole result, for the sum must consist wholly of squares and double products.

9. Simplify $(a+b+c)^3+(a+b-c)^3+(a+c-b)^3+(b+c-a)^3$.

[N.B.—First observe the symmetry. The signs only being permuted.]

Reasoning as above, we see that $a^3+a^3+a^3-a^3$, *i.e.*, $2a^3$ is part of the result, and also $3a^2b+3a^2b-3a^2b+3a^2b$, *i.e.*, $6a^2b$ is part of the result.

Now, perfect cubes have only one other sort of term, viz., abc.

Therefore, $2(a^3+b^3+c^3)+6(a^2b+a^2c+b^2a+b^2c+c^2a+c^2b)$ is part of it. To find its coefficients, put $a=b=c=1$, when given expression $=30$. This shows that the expansion contains 30 terms; but the part already found gives 42 terms, hence the remaining part is $-12abc$.

Ans., $=2(a^3+b^3+c^3)+6(a^2b+a^2c+b^2a+b^2c+c^2a+c^2b)-12abc$.

10. If x is an odd number x^5-x is divisible by 24, and

$$(x^2+3)(x^2+7) \text{ by } 32.$$

(*a*) For $x^2-x=(x-1)x(x+1)(x^2+1)$. Also, since x is odd it is of the form $2n+1$. Substitute this for x and we have

$$(2n)(2n+1)(2n+2)(4n^2+4n+2).$$

Now the first three factors are consecutive numbers, and some one of them must be divisible by 3. It is also plain that 8 is a factor of the expression, $\therefore$ 24 must be a factor.

(*b*) Substitute $2n+1$ for the odd number x and we have

$$16(n^2+n+1)(n^2+n+1),$$

and the last two factors are two consecutive numbers, $\therefore$ one of them must be even, and expression $=$ an even multiple of 16, *i.e.*, a multiple of 32.

11. If $4a^2b^2c^2(x^2+y^2+z^2)(a^2x^2+b^2y^2+c^2z^2)$
$=\{(b^2+c^2)a^2x^2+(c^2+a^2)b^2y^2+(a^2+b^2)c^2z^2\}^2$

when $a>b$, and $b>c$, show that $y=0$.

Multiply out, and arrange in powers of y

$$(a^2-c^2)b^4y^4+2\{(a^2-c^2)(b^2-c^2)a^2x^2+(a^2-c^2)(a^2-b^2)c^2z^2\}b^2y^2$$
$$+\{(b^2-c^2)a^2x^2-(a^2-b^2)c^2z^2\}=0.$$

Now $a^2>b^2>c^2$, $\therefore$ a^2-c^2, b^2-c^2, a^2-b^2, are all positive quantities.

$\therefore$ the coefficients of y^4 and y^2 are positive,

$\therefore$ it is necessary that each term$=0$, if their sum$=0$ or $y=0$.

12. Given $x+y+z=0$; $x_1+y_1+z_1=0$, show that

$$(x^2+x_1^2)yz+(y^2+y_1^2)zx+(z^2+{}_1^2)xy$$
$$=(x+x_1^2)y_1z_1+(y^2+y_1^2)z_1x_1+(z_2+z_1^2)x_1y_1.$$

Multiply out and $xyz(x+y+z)+x_1^2yz+y_1^2zx+z_1^2xy$

$$=x_1y_1z_1(x_1+y_1+z_1)+x^2y_1z_1+y^2z_1x_1+z^2x_1y_1,$$

i.e., $x_1^2yz+y_1^2zx+(x_1+y_1)^2xy=x^2y_1z_1+y^2z_1x_1+(x+y)^2x_1y_1$,

or, $x_1^2y(z+x)+y_1^2x(z+y)=x^2y_1(z_1+x_1)+y^2x_1(z_1+y_1)$, an identity on multiplying out.

PROBLEMS FOR SOLUTION.

By T. F. C. Penetanguishene. A point is taken in an equilateral triangle, and the distances from that point to the angles are respectively 10, $7\frac{1}{2}$, and $12\frac{1}{2}$ chains. Find the area of the triangle

By T. F. C., Appin, Ont. 1. A mortgage of $3000 is drawn for nine years @ 7%. The principal is payable in equal annual instalments, and interest on all unpaid principal payable therewith. How much must a man pay for this mortgage in order to realise 8% per annum, on his money?

2. A man and a boy work at a job on alternate days. The boy can do it alone in thirteen days. If the man begin first the work will be completed half a day sooner then it would be were the boy to begin first. Find in what time both man and boy working together can do the work.

3. Is the answer given correct—Smith and McMurchy's Advancec Arithmetic. No 20 p. 264?

For the benefit of readers we append the problem and answer given. Editor Math. Dep.

A semicircular plot of ground whose radius is 12 yds. has inside the circumference a path 2 yds. wide; the rest of the space is a flower-bed. Find the size of the bed. Answer 100 sq. yds. 5 sq. ft. $20\frac{4}{7}$ sq. in.

Contributions.

HENRY WADSWORTH LONGFELLOW,

The death of Longfellow leaves a blank in the roll of American *litterateurs* that will not be easily refilled. If not the greatest of American poets he is at least fairly entitled to the post of pre-eminence amongst the poets whom America has produced. In one ense, and that a very important one, he is hardly an American poet at all, for his modes of treating his subjects, and very often his subjects themselves, belong to the Old World rather than the New. It seems strange that a man of his fine intellect and generous sympathies could live from 1807 to 1882 and witness the progress made by his own country through its turbulent struggles upward to higher national life without showing in his writings some traces of the effect produced by those struggles on himself—strange, but not unprecedented, for the Sturm-und-Drang period of German national life had just as little effect on the placid temperament of Goethe. When Longfellow did choose an American subject it was usually legendary in its character and as remote as it well could be from topics suggested by the surging democracy by which he was surrounded but of which he himself formed no part, and the real character of which he apparently never understood.

Longfellow is one of the poets of nature, and of nature in her calmer moods. He loves the sunshine and the zephyr, not the thunder-cloud or the hurricane, just as he prefers to depict humanity in comfort and at rest rather than humanity panting and struggling to free itself from the fetters of evil that hamper and irritate it. The best passages in his best poems are those which delineate with loving minuteness of detail the impressions produced by nature, and the nearer her condition to one of perfect repose the more fondly he dwells upon the scene he is depicting. Of all his poems "Evangeline" furnishes the best illustration of this peculiarity and nothing even in "Evangeline" can surpass the following brief description of the Indian Summer :—

> Such was the advent of autumn. Then followed that beautiful season
> Called by the pious Acadian peasants the Summer of All-Saints!
> Filled was the air with a dreamy and magical light, and the landscape
> Lay as if new-created in all the freshness of childhood.
> Peace seemed to reign upon Earth, and the restless heart of the Ocean
> Was for a moment consoled.

Longfellow's highest claim to approbation is the absolute purity of his life and writings. Not an incident of the former known to

the public calls for censure from the most censorious ; not a sentence of the latter would be objected to by the most puritanical critic. He has written much that helps to supply a felt want amongst his fellow-men, and even those struggling mortals whose struggles he hardly seemed to notice are soothed and encouraged by the burden of his placid song and the lofty ideals it embodies. In this connection every one will at once recall his "Psalm of Life," "Excelsior," "Resignation," "The Builders," "The Village Blacksmith," and others too numerous to mention. The effect of his musical verse upon others can best be described by citing his own beautiful description of the effect of such poetry upon himself :—

The day is done and the darkness
Falls from the wings of Night,
As a feather is wafted downward
From an eagle in its flight.

I see the lights of the village
Gleam through the rain and mist,
And a feeling of sadness comes o'er me,
That my soul cannot resist :

A feeling of sadness and longing,
That is not akin to pain,
And resembles sorrow only
As the mist resembles the rain.

Come read to me some poem,
Some simple and heartfelt lay,
That shall soothe this restless feeling,
And banish the thoughts of day.

Not from the grand old masters,
Not from the bards sublime,
Whose distant footsteps echo
Through the corridors of time.

For, like strains of martial music,
Their mighty thoughts suggest
Life's endless toil and endeavour
And to-night I long for rest.

Read from some humbler poet,
Whose songs gushed from his heart,
As showers from the clouds of summer
Or tears from the eyelids start ;

Who, through long days of labour,
And nights devoid of ease,
Still heard in his soul the music
Of wonderful melodies.

Such songs have power to quiet
The restless pulse of care,
And come like the benediction
That follows after prayer.

Then read from the treasured volume,
The poem of thy choice,
And lend to the rhyme of the poet
The beauty of thy voice ;

And the night shall be filled with music,
And the cares that infest the day
Shall fold their tents, like the Arabs,
And as silently steal away.

Longfellow, like Wordsworth, was almost devoid of humour, but, unlike Wordsworth, this defect never causes him to make himself ridiculous when he is aiming at being pathetic. He was one of the most conscientious of artists, putting everything he produced into the best form possible before giving it to the world. For this amongst other reasons already referred to he has written much that posterity will not willingly let die and he has had the good fortune —rare amongst poets—of finding himself fully appreciated in his lifetime as he went along. His path was indeed flowery and his lot one of the most fortunate that could happen to a son of toil. His highest praise is that he was generous in sharing with others the flowers that grew by his roadside and that he always deserved his good fortune.

By occupation Longfellow was one of the great fraternity of teachers, but in this line he had not the qualifications necessary to attain to distinction. He was a conscientious and intelligent worker, respected rather than adored by his students owing to his want of enthusiasm, and exercising far more influence over them by his poems than by his prelections. He filled for many years the chair of "Belle Lettres" in Harvard University near which he continued to reside from his retirement from academical work in 1854 to the day of his death. To his life-work may be fitly applied his own beautiful and suggestive words :

Let us do our work as well
Both the unseen and the seen ;
Make the house where gods may dwell
Beautiful, entire, and clean.

CHARLES ROBERT DARWIN.

This great but simple minded philosopher and prince of observers of natural phenomena has after a long and honourable career gone to his rest. Born in 1809 he was fortunate in obtaining a good education, and graduated in Cambridge in 1832. A long voyage as naturalist to a surveying expedition sent out under the command of Capt. Fitzroy of the Royal Navy turned his attention permanently to natural science and afforded him an opportunity of collecting a large fund of valuable knowledge which he gave to the world in several works. Gradually the facts which came under his keen observation inclined him in the direction which marks his first great work "The Origin of Species," published in 1859, and the development theory which underlies his system was in 1871 still more fully elaborated in his "Descent of Man." Later works from his pen have appeared, but they are rather collections of facts then attempts to explain phenomena by the theory of "Natural Selection" which he has made so familiar to all modern students of natural history. It would be unfair to hold Mr. Darwin responsible for all the lengths to which those who call themselves his disciples have gone even in his life-time. As the result of his writings the develoment theory of creation has obtained a strong, if not an enduring, hold on the scientific thought of the age, but with this he concerned himself little. While the battle which he raised by his books was being waged furiously between the Spencers, Huxleys, and Haeckels on the one hand and the whole host of the orthodox thinkers, including many scientists, on the other, the venerable philosopher was spending his time in quietly watching plants devouring insects and in studying the various modes in which man and other animals express their feelings and emotions. Mr. Darwin was the recipient of many honours from Universities and other learned bodies, and his place is already assured to him alongside of such men as Lyell and Faraday in the great temple of science.

RALPH WALDO EMERSON.

Few names of literary men are more familiar than that of the poet essayist, and philosopher whose name heads this obituary notice. His death occured the other day at the advanced age of seventy-nine the greater part of his life having been spent in complete literary retirement at Concord. He graduated at Harvard at the age of eighteen, and then studied for the ministry of the Unitarian Church. He took charge of a congregation in Boston but by that mental restlessness which never left him through life he was constrained to abandon the pulpit and devote himself to his favourite pursuit, the investigation of man's place in the universe and of the relation he sustains to it. The term "philosopher," in its ordinary sense, is hardly applicable to Emerson, for he never elaborated any system, but many of his utterances are quite philosophical in tone however unsatisfactory his theory of human existence and destiny. He may fairly be regarded as a disciple of Carlyle, but while on the one hand he is no slavish follower of his acknowledged master, on the other he falls far short of him in that peculiar power which gave the latter such an influence on the present generation. The most characteristic work of Emerson is his "Representative Men," in the course of which he pourtrays his conception of the characters of Plato, Swedenborg, Montaigne, Shakspeare, Napoleon, and Goethe, whom he regarded as types of their respective classes. No doubt they were, and yet for anything the reader can see he might as well have chosen other six historical names with almost equal propriety. In nothing does he more closely resemble Carlyle than in this species of literary caprice. Whatever fault may be found with Emerson's opinions his life was admittedly stainless. He hardly merits the title of a great thinker, but he has long exercised and will still continue to exercise a considerable influence, rather however by stray thoughts strikingly expressed than by the promulgation of what may be called his philosophy of life.

INDUSTRIAL DRAWING.

It is well known that New Brunswick has for some time taken an advanced position on the question of Industrial Drawing, and it is with pleasure that we publish the following letter of the able and most energetic Chief Superintendent on the subject.

In a prefatory note Dr. Rand says:—"It seems to me that when mineralogy, geology and agriculture command so large an attention from the Government of Canada, it is reasonable to suppose that it can as legitimately give attention, in the safe way suggested, to the economic aspects of industrial art, its relations to the industries of the people, actual and potential, in all the chief communities of Canada,—just as emigration agents are sent out to set forth the resources of the country. Were there a competent adviser in art education whose services, by way of suggestion and criticism, were available on the application of any community or province, we should be able to avail ourselves at the outset of the dearly bought experience of the world, and could use it to purpose as the years go by, and the industrial contest grows sharper."

To THE HONORABLE SIR LEONARD TILLEY, C. B., K. C. M. G., MINISTER OF FINANCE, Ottawa:

Sir:—Having been associated with yourself for five years on the Board of Education of this Province, I venture to bring before you, as Minister of Finance of Canada, the matter of Industrial Art Education,—a subject, in my judgment, of great moment to the people of all our Provinces, and of interest to all especially concerned in promoting the industrial well-being of this Dominion.

The influence of International Exhibitions upon the manufacturing and other industries of the world, from the first in London in 1851 to the most recent in Paris in 1878, has been most marked, tending directly towards their elevation and increased value. This has been observable most distinctly among the intelligent and progressive nations. In all cases where great improvement in manufactures has followed one of these Exhibitons it has been through the influence upon, and changes made in, the Educational system of the countries affected. Thus the first Exhibition in London in 1851, which disclosed national deficiencies in taste and design in England as compared with some other countries, was *immediately* followed by the adoption of instruction in Drawing as an element in Education in the National Schools, by the organization of a Museum of Industrial Art (the South Kensington Museum), and the establishment of a Normal Art Training School in connection with the Museum, for the education of competent teachers in Art.

The progress made by England in the development of national taste, and the increase in value of her manufactures, was so prominent a feature in the next Exhibition in 1862, that a French Commissioner, empowered to examine into the causes of this extraordinary advance, attributed it mainly to the teaching of drawing in the public schools and the provision of trained teachers of Art in the Normal Art School. Such a school had not previously existed in France, but was then at once established at Clugny, near Paris. The Commisson also reported:—"Among all the branches of instruction which in different degrees, from the highest to the lowest grade, can contribute to the technical education of either sex, drawing in all its forms and applications has been unanimously regarded as the one it is most important to make common"—*Com. report*, 1863. Later on, a similar commission sent by the French Government to examine and report upon the Educational Section of the United States Centennial Exhibition in Philadelphia, in 1876, after especial attention given to the display of courses and systems of Industrial Art Education, reported that Massachusetts had, under the guidance of Walter Smith, marvellously well solved the problem of industrial art education for the masses of the people, and in view of the progress made, suggested to the French Government that "France must "defend that pre-eminence in Art which has heretofore been "uncontested. She has enormous resources which ought to be "developed by well-planned primary instruction. With us, as elsewhere, it is not enough to have excellent special teachers of drawing, "it is not enough to have good courses and good special schools; but "all teachers, male and female, must be able to give the first instruction in drawing, in daily classes, to all scholars. France, which has "gone to work energetically after her misfortunes, ought to devote "herself to the study of *drawing*, with no less ardor, and *reinvigorate* "her *productive powers* at the very sources of art."—*Report*, 1876.

After this report had been duly considered a large number of Inspectors of Drawing in the Public Schools were appointed, and a more scientific treatment of the subject required in the instruction, changes which had already borne fruit when the Exhibition was held in Paris in 1878, and were there displayed in the Educational Section.

It has been observed that the wealthiest and most successful manufacturing countries in the world are those in which the greatest encouragement is given to technical education *as a continuation of general education in Public Schools*,—a logical result of infusing the elements of taste and skill into the products of the factory and the workshop, which, without such elements, lack the attractiveness that finds a ready market for them in all civilized and refined communities.

A judicious and reasonable expenditure, therefore, upon the development of the values of manufacturing industries by the Government, who alone are sufficiently broadly interested in their elevation to take action in the premises, is really an economical investment. This is a necessary, surely, in Canada, with its constructive and manufacturing industries to be sustained and developed, and new ones created, as in the older countries which have all the advantages of historical art treasures, organized and matured systems of industrial and professional education to strengthen and invigorate their productive powers, and boundless wealth to fertilize them. Indeed it is only reasonable to infer that in the unavoidable absence of some of these advantages, the attainable element of a well-organized and thorough scheme of education in Art becomes all important.

A neighboring and kindred nation in the United States has felt the truth of this view, and has acted upon its convictions. Unable, as we have been, to produce its own art teachers, the leading educaional and manufacturing State of Massachusetts secured for the initiation and organization of its industrial art scheme an educator from the mother country, who from the period of the inception of this art element in public education in England had been an active participator in the important work there developed. Under his direction, and in the short period of six years, so great a progress had been made in 1876 that, as already quoted, the French Commissioners, representative of the most artistic nation in the world, recognized the significance of the progress by remarking, after the examination of the evidences of that progress at Philadelphia, "France must defend that pre-eminence in art which has been *heretofore uncontested*," The results which have since transpired have justified the language of the Commissioners. Already the effects of this general education in the elements of art of a whole people are becoming apparent in the development of new home industries, the elevation of public taste, and the economic utilization of the hitherto undeveloped but undoubted genius of the people in the direction of the most artistic and most profitable industries.

This enfranchisement of a people with the suffrage of the beautiful can only be accomplished through the general diffusion of taste and skill by means of education in art. Besides being the direct way, it is obviously the only one possible for us, a new country without the accumulation of historic treasures and unlimited wealth to assist us in our path upward and onward.

I regard this matter as being to-day the most important of social questions, for in it are contained, 1st. the economical problem of fructifying our resources and industries and protecting them from the aggression of superior skill from without, and 2nd. the educational responsibility of providing a practical education for our country which shall fit it for the inevitable competition with the world that is in store for all countries, young and old, becoming keener and more general day by day, and for which we cannot be too soon prepared.

During my examination of the schools of Great Britain and Ireland in 1870, I was deeply impressed by what I everywhere saw done in the schools in the elements of drawing and design. On my return, I addressed the Alumni of Acadia College, urging the establishing of a chair in the College for study of the elements of graphic art. On assuming the responsible duties of my present office in 1871, I determined as early as practicable, to introduce the elements of drawing and design into the schools of this Province as a factor in our common school education. In 1874, drawing was made a subject of study in all the schools of Fredericton, and almost immediately thereafter, in all the schools of St. John. Through the work done in the Normal School this branch of education rapidly found a place in the schools of the more important districts of the Province, and, in November 1879, the Board of Education provided that the elements of drawing and design should be a constituent part of the course of instruction in all the schools of the Province. I am aware that considerable has been done in the same direction in Ontario and Quebec, more especially during the last two years in the schools of

Toronto, Montreal, and other cities. The educational authorities of Nova Scotia have provided some instruction in the subject in the Normal School at Truro, and are now about to require that the schools of that Province shall generally teach the elements of drawing.

Hitherto we in this Province (and the same is equally true of each and all of the other Provinces), have indirectly received inspiration and help from the mother country by the adoption of the early stages of the scheme devised by Professor Walter Smith, (an Englishman), for the United States. But the time has arrived, I am confident, when we require more direct influences *to guide and guard* us in the complete development of this new branch of Education, than can be secured through the use of text-books. If we are to succeed we require the advice, council, and stimulus of an experienced and thorough master of the subject who shall reproduce for us and adapt to our circumstances and secure for all grades of our schools the good which has resulted to England by the Establishment of the National Scheme of Art Education there, and that is being now accomplished under our eyes for the United States.

To secure the progress already made and ensure its future development on the lines of the best experience, I am certain that each Province must require, at the earliest day, the services of such a master as Walter Smith—a requisition which none of the Provinces, except perhaps Ontario and Quebec, can at all afford to meet, and which under any circumstances but one could secure.

I therefore would most respectfully suggest that the Dominion Government should, if it be possible, secure his services, or those of some equally eminent man, if that be possible, for our country, in the common interests of Industrial and Educational progress.

As a preliminary step, I would deem it of supreme value that such an Adviser in Industrial Art Education should be commissioned

1st. To consider the relationship of Industrial Art Education to the development of manufactures and other constructive industries.

2nd. To enquire into the means whereby this new element in Education, so generally adopted in recent times by other progressive countries, may be rendered auxiliary in developing these industries in the Dominion of Canada.

3rd. To enquire into the progress already made in the pursuit of Industrial Art Education in the Public Schools and higher Institutions of learning in the Dominion of Canada, comparing it with the recent experience of other countries in the same direction, particularly that of England, France, and the United States.

4th. To report the finding under each of the foregoing, and to offer detailed suggestions concerning the means by which, in an economical manner and for the purpose of sustaining and elevating the manufacturing and other industries of this country by the increase of taste and skill, the elements of the practical arts and sciences might be conveniently studied in the Public Schools, and more advanced instruction be made available in special and other Schools and Institutions.

I have the honor to be,
Your obedient servant,
Fredericton, N.B., July 26, 1881. THEODORE H. RAND.

Examination Questions.

KNOX COLLEGE CLOSING EXAMINATIONS.

SESSION 1881-82.

ELOCUTION.

1. Describe the methods of breathing best adapted for voice culture and public speaking.

2. What precautions should be observed in public speaking to prevent waste of breath and tendency to clerical sore throat?

3. Describe the modes of practice for acquiring Force, and the Pure and Orotund qualities of voice.

4. Describe the conditions for securing distinct utterance of speech, and state what parts of words need special attention.

5. Give the principal rules for rhetorical pauses. Mark these pauses with a vertical dash in Isaiah 4 : 12, 13.

6. Describe the action of the voice in giving the rising and falling, and the rising circumflex and falling circumflex inflections, and state the general principles for the use of these inflections.

7. Give the rules of inflections for interrogations and exclamations.

8. Mark the inflections on the proper words in the following passages: Heb. 7 : 1, 2, 3; I. Cor. 1 : 13; Heb. 8 : 38, 39; Matt. 23 : 37; and give your reasons.

9. Give the rules for the treatment of the parenthetical clause, and shew how they are applied in Ps. 49 : 7, 8, 9; Ephesians 2 : 5, 6; and 4 : 3, 4, 5.

10. Give rules for the treatment of the simile and the metaphor, and shew how they are applied to distinguish the figurative from the literal in Ps. 1 : 3 and 4; Isaiah 1 : 18; and in these passages—

"He woke to die midst flame and smoke,
And death shots falling thick and fast
As lightning from the mountain cloud."

"I have ventur'd,
Like little wanton boys that swim on bladders,
This many summers in a sea of glory."

"And all went merry as a marriage bell—
But hush! hark! a deep sound strikes like a rising knell."

11. Define emphasis generally, and distinguish the emphasis of sense and feeling. What principle must guide us in selecting the emphatic words of a passage?

COUNTY OF WELLINGTON PROMOTION EXAMINATION.

THURSDAY, APRIL 6TH, 1882.

INSTRUCTIONS TO PRESIDING EXAMINERS.

1. Candidates in the same Class are to be seated at least five feet (or two desks) apart, and, whenever space will admit, no two candidates of any Classes are to be seated together. Whispering and copying are to be strictly prohibited, and in every case noted and reported by Examiner.

2. All books are to be taken from seats, and maps from the walls. Teachers cannot be permitted to hold the Examination at any other time than Thursday, 6th April, 1882.

3. Please follow the Rules and Regulations in each and every respect. The Time Table below is to be strictly followed.

J. J. CRAIG, DAVID P. CLAPP, } Inspectors.

TIME TABLE.

8:30 A.M.—Open sealed parcel and read instructions.
8:40 A.M.—Seat pupils.

		PROMOTION FROM II. TO III. BOOK.	PROMOTION F'M III. TO IV. B'K.	PROMOT'N F'M IV. TO V. B'K.
8:45A.M.	10:45A.M.	Arithmetic	Arithmetic ..	Arithmetic.
10:45 "	12:15P.M.	Geography & Writ'g	Grammar . . .	Grammar.
1:15P.M.	2:15 "	Literature & Dictat'n	History	History.
2:15 "	2:45 "	Reading	Dictation . . .	Composition.
2:45 "	3:15 "	.....	Composition .	Dictation.
3:15 "	4:15 "	.....	Geography . .	Geography.
4:15 "	5:00 "	.....	Literature . . .	Literature.
5:00	—— "	.....	Reading	Reading.

First Class—Promotion to Second.

FRIDAY, MARCH 24TH, 1882.

READING.

Time—1 hour.

First Book, Part II., page 69:—"She was neat and clean——on his arm." Value, 30 marks.

WRITING.

Time—½ hour.

Copy on slates in script (not printing), page 70:—"I am a very little child—a better child to be." Value, 30 marks.

DICTATION.

Time—30 Minutes.

Pupils will take separate seats with slates. To be conducted in writing.

"They all four had grand romps in the fields, and in the barn, where they now had a good swing." "Here you see Florence at her tasks for next day's school." "Boys, who do not know how to steer their sleighs well, ought not to ride down steep hills." "Wicked

boys, who rob birds' nests, do not think of all the pain they give the old birds." Guard, creature, grass, please, scorn, tease and rough.

The above is to be written neatly. Value, 22 marks, with 2 marks off for each error.

ARITHMETIC.

Time—2 hours.

Separate seats with slates.

1. Write in figures seven hundred and nine, five hundred and thirty-seven, one hundred and seventy three, four hundred and ten, eighty.
2. Express in words 306, 698, 101, XLIX, XC, IX, XL.
3. Find value of 68379+9634+867+96+60489+89+8.
4. From 683201234 take 98324625.
5. Find value of 684−83+457−395+67−39+765−79.
6. From one thousand and eleven take nine hundred and forty-five.
7. Find difference between 32506789030 and 6820456732.
8. A drover bought sheep as follows:—Of one man he bought twenty-seven, of another eighteen, of another fifteen, and of another twelve; afterwards he sold nineteen; how many had he left?
9. A lady bought a comb for 37 cents, some tape for 8 cents, some pins for 10 cents, some needles for 6 cents and some thread for 6 cents. She gave 75 cents; how much change should she receive?
10. ORALLY.

6+8	are how	many?
7+8+9	"	"
9+7+5+4	"	"
1+3+5+7+9	"	"
3+4+5+6+7+8	"	"
0 from 9	"	"
7 " 7	"	"
7 " 16	"	"
4 " 11	"	"
8 " 12	"	"
5 " 15	"	"
6 " 13	"	"
8 " 16	"	"

Value—100 marks—10 each.

LITERATURE.

Time—½ hour.

Open books and answer orally from page 36. 1. What is a lighthouse? 2. Why is it built on a high rock? 3. Why are lamps set at the top of the house? 4. What is malt? 5. Where do ice, salt and malt sell well? 6. What is a ship? 7. What are meant by "quilt" and "love of self"? 8. Give the meaning of "the masts break off," "the waves whelm the poor man," "were soon drunk," "a young lion's whelp," and "a great lot of rum."

Value—26 marks; the last is worth 5 and the others 3 marks each.

Entrance to Third Class.

LITERATURE.

Time—¾ hour.

On paper. Candidates to use Second Reader. Open books at pages 115, 116, 117 and 118.

1. Christmas comes on what day of the year? When is Christmas Eve?
2. For what are chessmen used? What is meant by "some new music? What are "sugarplums?"
3. Why is Christmas morning very late in coming?
4. Explain the following: "A little wiggle," "splendid books," "a queer stocking," "the sun never would rise," "a guard chain," "little fur muffler," "red ivory," and "a pin-cushion."
5. Why is Christmas kept as a holiday?
6. Explain the meaning of *huddling*, *Christmas boxes*, *neighbor*, and *parasol*.

Value—72 Marks—1, 12; 2, 12; 3, 6; 4, 24; 5, 6; 6, 12.

GEOGRAPHY.

Time—1 hour.

Answers to be written on paper.

1. Name the four cardinal points of the compass. What point is exactly opposite the south? Half way between the north and east what point have we?
2. Name the four seasons of the year. April is in what season?
3. Bound the Township of Nichol.
4. What is a cape? What is a Peninsula? What is a gulf? What is a valley? What is a volcano?
5. Name all the municipalities in the County of Wellington.
6. Distinguish City, Town and Village, and make a complete list of any Cities, Towns and Villages in Wellington.
7. Name any three rivers in the County.

Value—72 marks—1, 12; 2, 8; 3, 4; 4, 15; 5, 9; 6, 15; 7, 9.

ARITHMETIC.

Time—2 hours.

On paper—full work required—no marks unless correct and without changes.

1. From the sum of three hundred sixty-eight thousand four hundred fifty-six, one hundred one thousand nine hundred forty-two, five-hundred twenty-three thousand eight hundred sixty-four, seven hundred and twenty-nine thousand six hundred, one hundred twenty-nine thousand and four, take three hundred sixty-eight thousand four hundred fifty-six.
2. Write in Roman numerals 897, 308, 375, 983, 666.
3. Multiply 98765421 by 809.
4. The dividend is 235730444 the quotient 678, the remainder 14, find the divisor?
5. Write in words 630,268, 90370, 201003 and 40523.
6. A man bought a horse for $70, and paid $15 for keeping him; he "let" him enough to receive $24, and then sold him for $74; did he gain or lose by the bargain, and how much?
7. A man bought 7 barrels of flour for $63, and gave 5 barrels of it for cloth at $3 a yard; how many yards did he buy?
8. A man owed $67; at one time he paid $16; at another $9; at another $11; at last he paid the rest wanting $8; how much was the last payment?

Value—1, 12; 2, 12; 3, 12; 4, 12; 5, 12; 6, 12; 7, 14; 8, 14.

DICTATION.

Second Reader, page 192, from "This was so amusing a sight" to "into the bargain."

Pupils are to be told by Examiner where each sentence begins; capitals to be counted.

Harvest, luscious, autumn, golden, healthy, affection, remember, spectacles, feathers and future.

Slates are not to be used, but plenty of time can be given to the candidates to write it *once* carefully on paper.

Value—40, with two marks off for each error.

READING.

Second Reader, page 171, from "Next morning" to "all obstacles."

Value—30 marks.

WRITING.—ON PAPER.

Second Reader, page 202, "Poison drops of care"....."ere they soil the lip."

Value—30 marks.

Entrance to Fourth Class.

ARITHMETIC.

Time—2 hours.

1. Express in figures ten millions, ten thousand and ten; express in words 13000013 and in Roman notation 1882, 2004, 750, 10999.
2. How often must 807 be added to 119 to make ten thousand six hundred and ten?
3. Express 68932468 square inches in acres, roods, etc.
4. Simplify $\frac{1}{2}$ of $\frac{1}{3} \div \frac{3}{4}$ of $\frac{1}{2} + (\frac{7}{6} + \frac{1}{3}$ of 20).
5. Find the G. C. M. of 3013, 2231 and 2047.
6. Find the least number which divided by 6, by 8 and by 9 gives in every case the remainder 5.
7. Divide 480 apples in three heaps, the second heap containing three times as many as the first, and the third four times as many as the second.
8. A house and its furniture cost $6909; the house is worth six times as much as the furniture. Find value of the house.

9. A man takes 990 steps in walking half a mile, his son takes 1440 in traversing the same distance. How much longer was the father's step than the son's?

10. $\frac{1}{2}$ of a field is planted with carrots, $\frac{2}{7}$ with turnips and the remainder, 6 acres with potatoes. Find how many acres are planted with turnips and carrots respectively.

Values:—1, 6; 2, 8; 3, 10; 4, 10; 5, 8; 6, 10; 7, 12; 8, 12; 9, 12; 10, 12. Total.—100.

GEOGRAPHY.

Time—1 *hour.*

1. (*a*) Define strait, cape, estuary, river and gulf.
(*b*) Give states of the Union touching the great lakes.

2. Draw an outline map of the Dominion of Canada, giving Provinces and capitals of each, and locating principal rivers.

3. Name chief articles exported from Canada. To what countries sent? Also chief articles imported into Canada. From what countries do they come?

4. Name the principal islands in the great lakes and river St. Lawrence, locating each.

5. What and where are the following:—
Mackenzie, Sable, Charles, Nelson, St. Peter, St. Johns, St. John, Scugog, Nation, and Kempenfeldt?

Value—50. 10 marks each.

COMPOSITION.

Time—$\frac{1}{2}$ *hour.*

1. Enlarge the following sentences by the addition of words or phrases:—
(1.) ——years have passed away——.
(2.) Have you ever considered the wonderful structure———?
(3.) The ship set sail ——.
(4.) The enemy began their attack ——.

2. Construct several simple sentences on each of the following topics:—(1) Sleep, (2) War, (3) Peace, (4) Falsehood, (5) Poverty, (6) Honor, (7) Soldier, (8) Cottage, (9) Iron, (10) Mahogany.

3. Write a composition of not less than one hundred and fifty words on either of the following:—
(*a*) The Oak.
(*b*) New-Year's Day.

Values:—1, 12; 2, 10; 3, 28.

LITERATURE.

Time—1 *hour.*

Open Third Reader at page 74 and write the answers to the following questions on paper:

1. What is a "stockade fort"? What are "renegade white men"?

2. Name any Indian wars. Give the names of any Indian Chiefs who took part in them, and explain the cause of these wars.

3. Explain the meaning of "a thousand rifles," "cornfields," "garrison," "pioneers," "capacity," and "rescue."

4. What is meant by "the heroism of a woman may baffle the address of a warrior"?

5. Write one hundred words on the subject of this lesson.

Value—50. 10 marks each.

HISTORY.

Time—1 *hour.*

1. Name the two great French discoverers of Canada.

2. Give the dates for the founding of Port Royal, Quebec, and Montreal.

3. How were Cartier's people afflicted during the winter of 1535? What happened at his departure from Stadacona in 1536?

4. Describe the siege of Quebec by Phipps, in 1690. What was Frontenac's conduct, and how was it recognized?

5. Name six of the French Governors of Canada, and write a short account of one of them.

6. What were the plans of the English for the campaign of 1759? What was arranged on the side of the French?

Value—1, 5; 2, 5; 3, 8: 4, 12; 5, 10; 6, 10—50.

GRAMMAR.

Time—$1\frac{3}{4}$ *hours.*

1. Define Noun, Interjection, Pronoun, Case, and Adjective.

2. Separate into noun part and verb part:—
(*a*) Make no rash promises.
(*b*) The lark has sung his carol in the sky.
(*c*) Sweet be thy dreams!
(*d*) In childhood's hour I lingered near
The hallowed seat, with listening ear.

3. Tell the parts of speech in the following sentence:
He wrapped her in his seaman's coat
Against the stinging blast.

4. Write the past tense of go, come, see, run, takes, are, knows, lays, lies, sells, shines.

5. Correct the following:—
Who will go after a pail of water? Her and me.
Them are the books which we wanted.
Ida and me were out.

6. Write the *possessive*, singular and plural of the following nouns: Cable, tutor, mercy, engineer, princess, ox, sheep, poetess, gardener and sculptor.

Values—1, 10; 2, 12; 3, 22; 4, 22; 5, 9; 6, 25.

READING.

Third Book, page 261, from "One day" to "dead." Value 30, *i. e.*, fluency 20, and expression 10. Two marks to be deducted for every mispronounced word, and one for every other error in fluency, such as hesitation, miscalling, etc., etc.

WRITING.

To be judged from dictation paper.
Value—30.

DICTATION.

Time—$\frac{1}{2}$ *hour.*

To be written at once on paper and no copy made, capitals and periods to count.

Value—50, with 5 marks off for each error.

Third Reader, page 224, from "The schooner" to "waves." His birth took place in a berth in a vessel. Bury the poor brute and do not bruit about his faults. The teacher bade me to beware of bad men.

The above is not to be written on slates.

Entrance to Fifth Class.

WRITING.

Writing will be judged from Dictation Paper. Slates not to be used.

Value—25.

DICTATION.

Time—$\frac{1}{2}$ *hour.*

Fourth Book, page 92. From "No river can exhibit" to "and their martyrdom."

Places of worship are named, a church, chapel, grove, temple, synagogue, sanctuary, tabernacle, cathedral, and mosque.

Brilliancy, vacancy, flimsy, epilepsy, furzy, prevents, penitence, manœuvre, catastrophe, auspices.

Value—60. 5 Marks off for each mistake.

READING.

Fourth Book, page 79.—"If I slept then.....the moment came."

Value—30. Mark as in entrance to Fourth Class.

COMPOSITION.

Time—$\frac{1}{2}$ *hour.*

The Examiner will write the subjects on the blackboard. Candidates must choose one of the following subjects, and the composition must not be less than 25 lines in length:—

(*a*) Value of Time; (*b*) A Journey by Railway; (*c*) Never too late to learn.

Value—30.

GEOGRAPHY.

Time—1 hour.

1. (*a*) Distinguish Physical and Political Geography. (*b*) Define Axis, Planet, Lunar Eclipse, Basin, Tropics, and Longitude.

2. Name the bodies of water into which the following rivers flow: —Thames, Alabama, Arno, Elbe, Douro, Negro, Parana, Iser, Ticino, Indus.

3. What influences affect the climate of a country?

4. Over what railroad would you pass in going (1) from Collingwood to Ottawa, (2) from Stratford to Hamilton. Name the railroads running into the city of Toronto.

5. State accurately what and where are Ivica, Sark, Leith, Valetta, Neagh, Taranto, Morea, Comorin, Hoogly, Carpentaria.

6. Draw a map of great lakes, giving cities situated on each, with positions.

Value—1, 10; 2, 10; 3, 5; 4, 9; 5, 10; 6, 6.—50.

ARITHMETIC.

Time—2 hours.

1. What will 7 loads of pease cost each containing 50 bush. 50 lbs. at $62\frac{1}{2}$ cents per bushel?

2. Simplify $\cdot 035 \times \cdot 0045 \div \cdot 25$.

3. Add together $\frac{3}{4}$ of $\frac{5}{8}$ of 2 tons 4 cwt., $\frac{2}{5}$ of 3 quarters and $2\dot{9}$ of 5 cwt. 2qrs., and reduce the result to the decimal of 35 tons.

4. Define Factors, Quotient, Measure, Multiple, Remainder, Interest, Ratio and Integer.

5. Find value of $\left(\frac{\frac{1}{4}+\frac{1}{5}}{1\frac{3}{4}} - \frac{1}{2} + \frac{1}{2\frac{4}{5}} - \frac{\frac{1}{3}}{2\frac{11}{12}} + 7\right)$ of $\frac{\frac{1}{3}+\frac{1}{9}}{\frac{1}{9}+\frac{5}{4}}$ of \$210.

6. Write out the table of Avoirdupois weight. 144 lbs. Avoirdupois are equal to how many lbs. Troy?

7. A boy has a certain number of apples; he gave $\cdot 3\dot{3}$ to one boy, $\cdot\dot{3}$ of the remainder to another, and $428\dot{5}7\dot{1}$ of the remainder to a third; he had 736 left. How many had he first?

8. What number added to $\frac{5}{6}+\frac{4}{9}$ will give that number which, when subtracted from $3\frac{7}{12}$ leaves $1\frac{1}{3}$?

9. Find the largest number which will divide 34137 and 67638 leaving for remainder 201 and 102 respectively.

10. I bought goods on credit from a merchant to the amount of \$385.75 on Jan. 15th If he charges me seven per cent. per annum simple interest and I pay the bill on Aug. 23rd, following; how much must I give him.

Values—1, 5; 2, 5; 3, 10; 4, 8; 5, 10; 6, 10; 7, 14; 8, 12; 9, 12; 10, 14;—100.

LITERATURE.

Time—$\frac{3}{4}$ hour.

1. A formidable insurrection in Dalmatia and Pannonia had called Tiberius away from the Rhine and the Elbe to another field of warfare. In his place came Quintilius Varus, who allowed the poor Germans to be oppressed in every imaginable way, extorted money from them, etc.—*Fourth Reader*, page 204.

(*a*) Who were Hermann and Tiberius?

(*b*) What brave deed was done by Hermann?

(*c*) Explain the meaning of "field of warfare," "oppressed," "imaginable way," "extorted money."

2. A host of Roman princes were dragged to the altar of the Germans and sacrificed to Wodin.....; their heads were placed as trophies upon the surrounding trees.....But the Germans reserved their most cruel tortures for the Roman advocates and other pettifoggers, etc.

(*a*) Where were the altars of the Germans usually placed?

(*b*) What was Wodin?

(*c*) In what word is this name retained?

(*d*) Explain the meaning of "sacrificed," "trophies," "cruel tortures," "advocates and pettifoggers."

3. Give an account of the conquest of Mexico.

Fourth Books are not to be used.

Values—1 (*a*) 6, (*b*) 2, (*c*) 16; 2 (*a*) 5, (*b*) 2, (*c*) 2, (*d*) 15—24. Total value 72.

HISTORY.

Time—1 hour.

1. Tell what you know about the reign of King Alfred.

2. Explain the following terms:—Colonies, Cabinet, Governor-General, Premier.

3. When was the Act of Settlement passed? What are its chief provisions?

4. In what reign were the Act of Supremacy and the Act of Conformity passed? What were the results of these Acts?

5. For what event is the year of 1588 famous? Who prepared this expedition, what was its object, and by whom was he assisted?

6. Give a short account of what occured in 1715 and 1815.

Value—12 marks each—total 72.

GRAMMAR.

Time—$1\frac{1}{2}$ hours.

1. Analyze: "Cast thy eyes eastward," said he, "and tell me what thou seest?" "I see," said I, "a huge valley, and a prodigious tide of water rolling through it."

2. Parse: In every quarter of Europe might be seen, on the walls of the towns, the signal of torches waved in tumultuous consternation.

3. How many genders are there, properley so called? What is the meaning of common gender?

4. What do much, few, a few, several, all, another, severally, denote? Illustrate by example.

5. Write down (1) ten irregular verbs; (2) the defective verbs; (3) the auxiliary verbs that are also used as principal verbs.

6. Name all the parts of speech modified by adverbs. Give examples.

7. Correct errors in the following sentences, giving your reasons:

(*a*) I wonder who they have asked to the party.

(*b*) Neither of them bear any sign of case at all.

(*c*) I had wrote to him the day before.

(*d*) Him excepted all were lost.

Values—1, 7; 2, 36; 3, 8; 4, 12; 5, 12; 6, 5; 7, 20.

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

CHAPTER II.

15. The chemical symbols given in the last section are generally taken from the common name, but a few are derived from foreign names, thus Pb. (plumbum), Fe. (ferrum), Ag. (argentum), Hg. (hydrargium), K. (kalium), Na. (natrium), &c.

It is important to remember that each symbol is not only a contraction for the name, but also stands for one atomic weight of the substance. Two or more atoms are denoted by subscript figures as O_2, H_3, C_4, P_5, &c, meaning two, three & c atoms of oxygen, hydrogen &c.

The sign +, is used in the sense of "together with." The sign = is used in the sense of "produces," or "yields" It means "equal to" only in special reference to the weight which must be the same on both sides, since we can no more destroy matter than we can create it. Thus the union of two atoms of hydrogen with one atom of oxygen to form water is expressed $H_2+O=H_2O$. If the atomic weights, otherwise called combining numbers, are written we see that $1\times 2+16=2+16$ in the arithmetical sense. No weight being lost or gained by the chemical action. The gain spoken of in experiment 16 is due to the additional weight of oxygen absorbed from the air. A numeral placed before any symbol or symbols is like a coefficient in algebra and multiplies the expression as far as the next + or period, thus four atomic weights of sulphuric acid are written. $4H_2SO_4$.

The bracket is used to denote that the symbols enclosed are to be considered to represent one molecule, thus $3(NH_4)_2SO_4$ means three equivalents, or atomic weights of sulphate of ammonium. It also means that each molecule of this sulphate consists of three simpler

molecules, viz. two molecules of ammonium, NH_4, and one molecule of the composition SO_4.

The following *chemical equations* or *chemical formulas* express the *chemical reactions* or changes which happen when the ingredients are brought together with proper precautions.

Gun-cotton decomposed by ignition.

$$2C_6H_7(NO_2)_3O_5 = 6CO_2 + 5CO + CH_4 + 6N + 5H_2O$$

$$2\{72+7+(14+32)3+80\} = 6(12+32)+5(12+16)+12+4+84+5(2+16)$$

$$594 = 594$$

Calcic Carbonate		Hydrochloric Acid		Calcic Chloride		Water		Carbonic Anhydride
$CaCO_3$	+	$2HCl$	=	$CaCl_2$	+	H_2O	+	CO_2
$40+12+48$	+	$2(1+35.5)$	=	$40+71$	+	$2+16$	+	$12+32$
		173	=	173				

The reaction which occurs when ($K_4C_6N_6Fe$), potassium ferrocyanide is heated with strong sulphuric acid H_2SO_4, and water H_2O is expressed :—

$$K_4C_6N_6Fe + 6H_2SO_4 + 6H_2O = 6CO + 2K_2SO_4 + 3(NH_4)_2SO_4 + FeSO_4.$$

The products are carbonic oxide, potassic sulphate, ammonium sulphate, and iron sulphate.

We can easily calculate the weight of any element in a given weight of a compound if we know its chemical formula. Thus Chlorate of potash, or potassic chlorate is $KClO_3$. The 39 parts of potassium, 35.5 parts of chlorine, and 48 parts of oxygen give 122·5 parts of chlorate. Hence the potassium is $\frac{39}{122\cdot5}$ the chlorine $\frac{35\cdot5}{122\cdot5}$ and the oxygen the $\frac{48}{122\cdot5}$ of the whole chlorate. Therefore in any given weight of chlorate these fractions of the whole weight will give the weights of the ingredients present. Similarly, the potassium is $\frac{39}{35\cdot5}$ of the chlorine and $\frac{39}{48}$ of the oxygen. Hence 100lbs of potassium require $\frac{3900}{35\cdot5}$lbs of chlorine, and $\frac{3900}{48}$lbs of oxygen to form potassic chlorate. And the *percentage composition* is K=31·8 Cl=29, O=39·2 Similarly 594 oz of gun cotton yield 84 of nitrogen, that is the nitrogen is always the $\frac{84}{594}$ of the gun cotton, and the gun cotton is the $\frac{594}{84}$ of the nitrogen produced. Hence to produce a given quantity of nitrogen we must take $\frac{594}{84}$ as much gun cotton by weight, and conversely if a given quantity of gun-cotton be used then $\frac{84}{594}$ as much nitrogen by weight will be generated.

It will be observed that the atomic weight of a compound is always equal to the sum of the atomic weights of its constituents.

16. Chemical nomenclature is the spoken language of chemistry, just as the notation or symbolic characters are the written language. The principle followed in inorganic chemistry is that the name of the compound shall signify the nature of its elementry constituents, but in *organic chemistry*, that is the chemistry of the carbon compounds, this principle has to be abandoned on account of the immense number of similar substances, and names are given which shall suggest the origin of the bodies. The modern system was begun about the beginning of this century. Old common names have generally been retained, but all elements and compounds of more recent discovery have received more or less systematic appellations. Metals and bodies resembling metals have names ending in *—ium* as calcium, sodium. Elements like chlorine have names terminated in *—ine* Another group ends in *—on*, carbon, silicon, boron. When two simple elements unite the compound ends in *—ide*, thus we have hydrides, chlorides, bromides, iodides, fluorides, oxides, sulphides, etc., compounds of hydrogen, chlorine, bromine etc. with one other element. In case two elements form several distinct compounds prefixes are used to denote the proportions, thus the monoxide, dioxide, trioxide, tetroxide, pentoxide, of any substance contain 1, 2, 3, 4, or 5 parts by weight of oxygen, $N_2O, N_2O_2, N_3O, {}_3N_2O, N_2O_5$. The prefixes *di—*, *tri—*, *tetra—*, *penta—*, &c., are used in this way. The prefix *per* or *hyper* and suffix—*ic* denote that the compounds contain more of an element resembling oxygen than compounds beginning with *hypo* and ending in—*ous* respectively. Thus hypochlorous acid $HClO$, chlorous acid $HClO_2$ chloric acid $HClO_3$, perchloric acid $HClO_4$; mercurous chloric Hg Cl., mercuric chloride $HgCl_2$.

Similarly *—ite* denotes less than *—ate*. Both are applied to the compounds of bodies whose names ends in *—ous* and—*ic* respectively. Thus chlorous acid combines to produce chlorites, chloric acid to produce chlorates, hypochlorous acid gives hypochlorites, perchloric acid yields perchlorates, hypermanganic forms hypermanganates.

17 It is found that when compounds are decomposed by the electric current, some elements appear at the positive, others at the negative pole. Those which appear at the positive pole are called *basylous* or *electro-negative* those at the negative pole, *chlorous* or *electro-positive*. The difference is one of degree only, thus mercury is negative to sodium, and positive to iodine. But the following eight, fluorine, chlorine, bromine, iodine, oxygen, sulphur, selenium and tellurium are negative or chlorous towards the remaining elements. The name of the positive element is placed first with the adjective termination—*ic.*, the name of the negative element last with the ending—*ide* :—thus, mercuric chloride HgCl, argentic bromide AgBr, potassici odide KI, ferric sulphide FeS, sodic oxide Na_2O. The adjectival ending—*ic* is not used by all writers. Some prefer silver bromide, potassium iodide, sodium oxide &c. The student must be prepared to hear the same thing called by different names as chemical nomenclature is at present in a transitional state.

(To be continued)

NOTES ON HYGIENE.

BY J A. WISMER, PRINCIPAL OF PARKDALE PUBLIC SCHOOLS.

(Continued from last month.)

Never crack nuts with your teeth; leave that practice to squirrels and monkeys, to whom nature has been more generous in sharp pointed, easily repaired enamel than to the human race. Very hot or very cold substances should not be brought in contact with the teeth ; do not drink either ice water or very hot tea for the sake of the enamel of the teeth, if for no other reason. Too much sweet or too much acid likewise injures the teeth and causes them to decay ; do not eat too many candies or very sour substances such as lemons, and for the sake of decency do not chew gum or tobacco. Tobacco smoke permanently discolors the teeth and has other bad effects such as increasing nervousness, and impairing digestion. Certain medicines, particularly many of the preparations of iron, will also discolor the teeth. Parents should watch their children's teeth and, as soon as decay sets in, consult a regularly qualified dentist. Many a tooth, if filled in time, will last a life time, but, if neglected may have to be extracted in a very few months. A few sound teeth in the upper and lower jaws are worth more to the person interested, than all the teeth that can be made by the dentist's art. Take particular care of your teeth therefore; remember, that when once extracted, they cannot be replaced. Use only gold filling, it is the best for many reasons. For real, old-fashioned, jumping tooth-ache, extraction is the only cure. I may say however that as a rule you need not fear tooth ache, if you take proper care of your teeth. Sound teeth secure the thorough division of the food we eat, and go a long way in preserving good health. Bad breath is caused either by bad, ill cleaned, neglected teeth, or by a disordered

stomach. Both combined produce breath most foul and offensive. The same result is attained by the use of tobacco and alcoholic stimulants. My dear boys and girls, never use either, shun the latter particularly, not only for the *body's* sake, but for that of the *soul.* A sweet breath is something to be thankful for, and is a sure indication of good health. If you keep your teeth all right, your stomach all right, breathe pure air only, and do not smoke or drink, I will answer for it your breath will be as sweet as the flowers of May.

We will next take up that "window to the human soul"—the eye. Look at the bony arches which protect it, the eye-brows and eye-lashes which intercept the dust and floating particles of matter in the air ; see the eye-lids with their thousands of little moistening glands ; study the beautiful blending of colors in the iris and pupil: think of the vast number of contrivances necessary to enable the eye to flash in almost any direction with the rapidity of lightning controlled wholly by the human will ; then prove to me, if you can, that this grand mechanism is simply the result of chance, or the product of evolution, or a mere freak of nature. No you cannot. Nothing within the power of puny humanity could fashion anything even approaching it ; for a designer then we must look beyond nature to nature's God. The rays of light, or pictures of what we see, are received on the inner concave surface of the eye called the retina. This impression is transmitted to the brain through the optic nerve. Exactly in the centre of the retina is a round yellow spot the use of which is as yet unknown. The retina is enclosed by what is called Jacob's membrane so called from its discoverer. The rays of light are absorbed by a black cellular substance called the choroid which surrounds Jacob's membrane. In front we have a convex lens, called the cornea, behind which is a watery substance called the aqueous humor. There is a thin partition of membrane in the aqueous humor called the iris in the centre of which is the pupil. Behind these is the crystalline lens which is the most important refracting structure in the eye. The remaining portion of the eye-ball is composed of a jelly-like substance called the vitreous humor, the whole being enclosed in a dense fibrous membrane called the sclerotica to which the muscles which move the eye are attached. Care should be taken not over-tax this delicate and wonderfully constructed organ. If there is any class of people on earth which calls for our best and kindest sympathies it is the hopelessly blind, shut out from God's sunlight, unable to see the kindly glances of father or mother or friends, living ever in total darkness. Be kind to the blind man therefore should you ever meet him, and if you have a quarter in your pocket give it to him, if he isin want. Never read small print by fire or gas light if possible to avoid it, and have a shade over the lamp or gas so as not to strain the eyes. Do not for any length of time gaze intently at any single object especially if small and at a distance. Do not stare at the sun, or the fire if close to it. In fact, do not *stare* at anything, it is bad manners, to say the least. If a gnat or any small substance as coal dust gets into the eye, keep cool and do not rub it, which is about the first thing you will feel impelled to do. This will simply set up inflammation and increase the pain. If under the upper lid it may generally be got rid of by drawing the lid outward and down over the lower lid the eye-lashes of which may take it up. Either lid may be easily everted over the handle of a teaspoon when a friend can remove any. ordinary foreign substance with a silk handkerchief. Then bathe the eye carefully with tepid water mixed with a little salt, keep it from the light for a short time, and it will be all right. Of course for any serious injury consult a physician at once.

(To be continued)

DISCIPLINE OF THE SCHOOL.

The great business of the teacher is to discipline his pupils. He cannot "add to their stature one cubit," nor to their mental nor moral capacity one new power ; but he can bring them under such a process of training as will subdue their wild and untamed impulses, develop the latent energies of body, mind, and soul. and direct them to a course of right action ; so that the future citizen and law-giver may be fitted for his great work and high destiny.

The object to be secured is two-fold, viz. : school vices must be prevented or cured, and school virtue must be cultivated. Among school vices, as they have been classified, are idleness, whispering, disorderly movements in the school-room, injury to property, and rudeness of speech or act in the intercourse of every day life. The school virtues to be cultivated are suggested as the opposites of these, viz. : regularity of attendance, promptness, obedience, truthfulness, earnestness, diligence, kindness, neatness, and thoroughness in the preparation and recitation of lessons.

Thorough organization and classification.—I have seen the school in operation so perfectly systematized, all its arrangements so complete, and its departments so perfectly adjusted that the workings of its machinery not only produced no friction, but created order, interest and zeal, such as secured the desired object. I have seen these arrangements so perfect as not only to prevent general disorder, but to punish wrong without the aid of the teacher. Organization is the first business of the school-room, and nothing else should be attempted until this is accomplished. The object in view is that systematic arrangement and uniformity which will secure good order and promote studiousness. To this end the pupils should be so seated that they will appear uniform, and not disturb each other in the necessary movements of the day. The rogues should be separated, and every temptation to idleness and mischief removed. A complete division of time into periods for study, recitation, and play is also necessary. A time for disorder is, however, just as necessary as a time for study; hence the teacher must provide not only regular recesses for freedom in the open air, but also occasional recesses from study (say two minutes) for the purpose of opening the safety valve of mischief and giving opportunity to whisper, ask questions, leave seats, and attend to all other necessary irregularities not allowed at other times.

All school laws must be based upon authority.—It must be distinctly understood that persuasion may never take the place of authority in school management. When, however, the *right* to maintain authority is not questioned by the pupil, or after he has been subdued to obedience, we may persuade, invite, and win. But kindness cannot take the place of authority. Obedience is not a voluntary compliance with a request, but a hearty response to acknowledged authority—an implicit yielding to command. Such obedience, prompt and unreserved, is the duty of every pupil.

Another important agency in school discipline is work.—Both the master and his pupils must work. Indolence in him begets idleness and recklessness in them. Life, energy, and industry manifested in him will be at once reproduced in them. The teacher must work to fit himself for his high calling and to elevate his profession. He must work for his school, to interest and benefit his patrons, to rouse and inspire his pupils, and to prepare himself for his daily teaching. Indeed, the true teacher is always reading, thinking, or acting for his school.

Still another moulding and controlling power in the school-room is public opinion.—This must be created and directed by the master, or he is powerless. And first of all he must create a favorable opinion of himself ; that is, must gain the confidence of his patrons and pupils. To this end he must form an intimate acquaintance

with both parents and pupils; he must interest himself in what interests them, and adapt himself to their varying tastes and peculiarities. On terms of friendship and in full sympathy with all, he is prepared to secure their co-operation, and thus carry out his plans and purposes for the welfare of his school.

Mental and physical recreation are important disciplinary agencies.—The mind and body are inseparably connected. Hence mental culture cannot be successfully carried on without physical culture. Both mind and body must have recreation more than the ordinary recesses and holidays afford, and, as every teacher knows, there are certain hours and days when the fiend disorder seems to reign in the school-room. He cannot assign any reason, but the very atmosphere is pregnant with anarchy and confusion. And what can the teacher do to overcome the evil? Let an unexpected change divert the attention of the pupils; let some general theme be introduced in a familiar lecture or exciting narrative; or, if nothing better is at hand, let us say the multiplication table, or sing "Old Hundred," and the work is accomplished. The room is ventilated of its restless contagion and the furies are fled. Now add to this mental the physical recreation of school gymnastics, and the remedy is still more sure. Gymnastics are useful and important not only as a means for physical development, but also of school government.

The discipline of punishment.—The circumstances connected with the offence must be carefully studied, and a distinction always made between wilful and unintentional wrong. The isolated act of transgression does not indicate the degree of guilt incurred nor the kind of punishment to be inflicted; the presence or absence of palliating circumstances, the motives which generated the act, the present views and feelings of the offended pupil, must *all* be taken into the account. The master should never, therefore, threaten a specific punishment for anticipated offences. No two cases of transgression will be exactly alike, and hence the kind and degree of punishment should be varied as the case demands. Moral influence and kindness should attend every act of severity. Never let the sun go down upon the wrath of a chastised pupil. See him alone, bring to bear upon him every moral power, treat him now with kindness and confidence, and thus restore him to duty and favor. One example to illustrate: A gold dollar had disappeared from the teacher's table while she stepped to a neighboring room. Two school girls, who were the only persons present, had disappeared. It was Saturday, and in the evening the young ladies were assembled in the public parlor for family worship. The principal, who was conducting the exercises, commenced describing the effects and consequences of having, by accident, deposited a gold dollar upon the human lungs. It would corrode and poison, produce inflammation, disease, and death if it could not be removed. He then transferred the gold dollar from the lungs to the conscience, and portrayed the consequent guilt, remorse, anguish, and moral death resulting from such a crime, if not repented of. He presumed the young lady would gladly restore the money and save herself from the disgrace and suffering which must follow. He told her where she could leave the dollar, and that the fact of restoring it would be proof of her penitence, and would save her from exposure. In her desperation she had already thrown the dollar down the regeister; but she did borrow the amount of her teacher, confidentially, to be paid from her spending money, and deposited it as suggested. And so the whole matter was settled, and the most satisfactory results followed. The parents of the young lady never knew that anything of the kind had occurred.

The discipline of study.—Study is mental gymnastics, systematic thinking, and the end in view is development and culture. One great object of the school is to induce and direct this mental exercise. Study is of the first importance, and hence must have the first attention of every practical teacher. He teaches his pupils how to study. He shows them it is not the number of hours spent with books in hand, but close application that secures thorough discipline and good lessons, and that self-application is the only condition of sound learning.

The discipline of recitation.—Recitation is the exercise of expression, and, like study, belongs wholly to the scholar. Study and recitation are the principal means of gaining mental power and practical ability.

The discipline of instruction.—School instruction serves to render acquired knowledge more definite and conceptions more vivid, and cultivates the power and habit of expression. And all these exercises—study, recitation and instruction—have one common end to accomplish, viz.: discipline.

There are three methods of instruction. The more common is by *questioning*. Many teachers know of no other way, and some have so little knowledge of the subjects taught that they demand to have questions prepared for themselves as well as for their pupils. And bookmakers, quick to observe the condition of the market, often line the margin of their books with leading questions to be used in study and recitation. This is all wrong and one of the indications of the superficiality of the age. The tendency in all departments of learning is to skim the surface and remove the necessity of thoroughness. Questioning is not the best method of instruction, nor can it be safely adopted as the only method. Yet the method has its place, and may be useful: first, to direct the attention of the pupil to special topics or thoughts which have been overlooked or omitted in the recitation; secondly, it is useful in conducting reviews and examinations.

Written answers have the advantage over verbal that they bring the scholar under rigid examination in other departments of primary instruction. A written answer exposes his penmanship, orthography, use of capitals, punctuation, and forms of expression. Hence, this method of examination should be practiced as often as time and circumstances will allow.

Lecturing is another method of instruction which has its uses and abuses. A lecture by the teacher should never be substituted for a recitation by the class. Many teachers suppose that the measure of their ability as instructors is the power they have to explain and talk before the class, and hence they spend the most of the hour assigned to recitation in the display of their own gift of speech. But in the recitation room the good teacher has but little to say.

Study and recitation are the principal agencies to be employed in the process of training. Instruction is useful and important only so far as it secures, directs, and controls earnest study and careful recitation. Any system of instruction, therefore, which weakens the motive or removes the necessity of laborious thinking and independent expression is false in theory and ruinous in practice. The recitations should be made standing, that the pupil may be brought out prominently before the class and acquire the habit of thinking and speaking in that exposed position. This will give him confidence and self-control. But some thoughts cannot be expressed in words; these must be drawn out in figures, diagrams, and maps.

The discipline of good manners.—The manners of people surely indicate their morals; but human society itself exists only so long as the moral sense of the community is preserved. Of manners and morals it may, then, be affirmed that the one is but the complement of the other, and that they cannot be separated.—HIRAM ORCUTT, in circular issued by *Bureau of Education, Washington.*

The following is from a recent teachers' examination held in Wayne County, Iowa:

Q. What is a fraction? A. A part of a *hole.*

Q. What use do you make of a word the meaning of which you do not understand? A. You don't make much use of it, and when you do, not very much.

Q. Give a synonym of annals. A. Yearly.

Q. Give a synonym for celebrate, A. Thankingful.

Q. Does it injure a pupil to have him learn to spell and pronounce words that he does not understand? A. I think it *is.*

Q. Give the meaning of the word disjoin. A. To join apart.

Q. How are the expenses of the U. S. Government defrayed?

A. By *Licentious* fees for selling Liquors.

Q. Who were the puritans—why so called? A, The Puritans were a religious *sex* so called by England.

Q. Who were the Quakers? A. The Quakers founded Pennsylvania, led by William Tell.

Q. Write an application for a school. A. Corydon, Iowa, Aug. 24, 1881. Mr— If you are willing to give me your school I am willing to take it. Yours—

—*Iowa Normal Monthly.*

CLASS CONVERSATIONS.

BY JAMES L. HUGHES.

The most practical way of teaching children to speak correctly is to let them speak. There are other things besides grammatical accuracy that are essentials in good speaking. The manner of speaking; the tone of voice; the rate of utterance; the pronunciation and articulation of words; the position of the pupil's body, especially as to general erectness, the feet, the hands and the eye; all these should receive the closest attention on the part of the teacher. It will be of little avail, however, to give theoretical rules relating to grammatical construction or any other of the elements of good speaking. "Childern learn by doing," and they can only learn to speak by speaking. Correct speaking must become a habit induced by long and frequent practice. To speak well a man must be conscious only of the *thought* he is expressing; he must not be hampered by the consideration of his method of expression. His grammatical accuracy, his pronunciation, his impressive elocution, and his appropriate dramatic action should be certain, but they must be spontaneous. There is only one way to make them so; extensive practice when young.

This practice develops readiness in speaking, and it enables the teacher to correct errors of all kinds made by the pupils.

There are many teachers who allow their pupils a few minutes for conversation at the end of each hour between lessons. It is generally much better to relieve pupils after an hour's hard study, by lively physical exercises, but a conversation once in the forenoon and once in the afternoon is quite an appropriate way of resting a class The conversations are much more instructive, and more interesting to the pupils if they are class conversations instead of mere talks between the couples in adjoining seats.

The following are suggested as appropriate methods of conducting class conversations.

1. Let the pupils report the inaccuracies of speech both in pronunciation and grammar which they have heard since leaving school on the previous day.

2. Let them relate any items of interest that they have read or heard during the past twenty-four hours.

In the first exercise the pupils should say; "I heard a boy say, 'I seen a elephant'; he should have said, 'I saw an elephant,'" etc.; stating the error first and then making the correction.

In both cases the pupil speaking should stand up and speak in complete sentences.

If any errors are made, by a pupil in expressing his thoughts they should be corrected by the other pupils under the guidance of the teacher.

In the higher classes the criticisms may be extended to include a wide range of word analysis and sentence making.

THOUGHTS AND SUGGESTIONS ON EDUCATION.

BY PROF. W. H. VENABLE.

I. It is not easy to learn to think; nor is it easy to think after learning how. The big-brained Carlyle says: "True effort, in fact, as of a captive struggling to free himself: that is Thought!" We are bound down by many cords of usage and ropes of authority; and it takes force and courage to break the bonds—to think in regard to Education.

II. Many regard the speculative philosophy of Education as mere fog and delusion. There is much fog and delusion brooding over the subject; but the solid land of True Science must be somewhere beyond the mist.

III. Before we can safely run the train of Right Method along the track of Practice, the head light of Theory must shine into the opening way.

IV. Doctor Harris, the Great American Philosopher of Education, has benefited the system more by his lectures and writings than any twelve mere unthinking, practical superintendents.

V. The teacher can not teach anything: the pupil *must learn.* You can no more think for your pupil then you can digest food for him. The mind is solitary in its real achievements. We must work out our intellectual salvation, alone. Teachers can order the "environment" but not do the vital work of another spirit.

VI. Not the studies, but the study, makes the scholar.

VII. Education is the Science of Life, and conduct is its cognate art.

VIII. I do not believe in fitting boys for college, if that fitting unfits them for life. The one fitting should be the other.

IX. You are all your ancestors, including the Old Adam. Judge your pupil in the light of his heredity.

X. The perfect work of Education can not be accomplished except in the individual who comes of a stock cultivated for generations. Training your pupil, you may be training his great grandson. Infinite are the reaches of the schoolmaster.

XI. Stupidity, stolidity, inaptitude for special studies, vicious tendencies, are to be regarded as chronic disease—the pupil may slowly be cured.

XII. Many teachers of morality destroy the good effects of judicious counsel by too much talk, as a chemical precipitate is redissolved in an excess of the precipitating agent.

XIII. The best teacher has in view not his own education, but that of his pupils. They are his study; not the subject he teaches.

XIV. Take care of the blockheads and the heads will take care of themselves.

XV. All schooling in school should be supplemented and tested by schooling out of school.

XVI. The school must recognize its constant vital connection with the world around. Every teacher's desk should be in sight of the great facts of the times in which we live. Boys are men, girls are women, *to-morrow.*

XVII. Like the ancients, we must teach virtue as well as smartness. No good education can be based on mere intellectuality.

XVIII. Bain is wrong in assuming that affection can play but a small part in teaching. Human love and sympathy play the greatest part in early training. They play the greatest part even in a class in mental arithmetic.

XIX. We should have a "Science of Education" written by a Platonist. The best works we now have are based on the Materialistic Philosophy. Let us see both sides.

XX. We neglect political education in our schools. Every boy and girl should be taught the elements of politics and economics; and especially, in these times, should the young be inspired with a pure patriotism and a religious devotion to the duties of citizenship.

XXI. Educational theory and practice should proceed from the faith that there is a God at the center of the Universe, and a soul at the center of Man.—*The Normal Teacher.*

LESSON IN NUMBERS.

Mine is a class of about thirty-eight young pupils, and they know but little about numbers; in fact, but one or two could read. These were the first lessons given after counting, etc. I taught by means of sticks, saying: "One stick", "two sticks", etc. Then each pupil had a box of sticks, and he counted them singly at first, and then in concert with the rest. I taught them to write figures by saying 1 stick, and have a pupil at the blackboard write 1, and all the others write the same on their slates. Then I took up two sticks, having them look at me, and the pupil at the board write 2, and all the rest the same on their slates. So 5, 3, 8, 7, 2, etc., were written, until they became perfectly familiar with the relation of the character to the number. It was done over and over. I gave them straws (because they were plentier than sticks), and they counted to ten; then I took away one straw at a time, saying 10 straws, 9 straws, etc.

Then we went up to 20, then up to 30, and so up to 100 by slow degrees. I did not have them go backward except from 10 down. They could count quite rapidly from one up to one hundred. Then I let them tie up the straws into bundles of 10 each. Telling them to put up things by tens was quite common. Each pupil had ten bundles and a box of straws besides. I said: I have here one bundle and one straw. I write on the board thus: 11; the left hand

one means 1 ten. This I made plain by calling attention to its being at the left of the other 1—it was a different 1 from the other.

I piled up my bundles on the table, with the ends toward the pupils. I had a pen box in which I made nine holes. I put down one bundle by the box and put in the holes two straws, and asked the pupils to write the the figures on the board :

1 bundle and 2 straws—12
1 bundle and 3 straws—13
1 bundle and 5 straws—15

Then I repeated it over and over. Then I reversed the operation. I wrote 15 on the board, and then asked them to lay out the straws the 15 represented, and so on. Then, by slow stages, I went on to lay out two bundles and three straws. They caught the idea, and so we went on happily and brightly.

Every number up to one hundred was written and represented. I will confess that, although I had taught children for six years, I never had so much pleasure before in writing numbers—never ; it was perpetual pleasure.

Then I wrote seven on the board, and they took up 7 straws; then I wrote six and they took up 6 straws. How many in all? They said 13. But I want them in tens when it is possible, I said. So they took up a bundle in one hand and three sticks in the other.

So we went into addition. Thus we took up 14 and 17, 36 and 42, 37 and 45, etc. Take this last case. They laid out 3 bundles and 7 straws, and then 4 bundles and 5 straws. How many have you? 7 bundles and 13 straws. But I want them in 10s. They then said 8 bundles and 3 straws. Then we took up subtraction. I gave them one bundle and four straws, and said take away one bundle and three straws, etc. They did this with ease. The figures were put on the board in every case. Then I wrote the figures and they did the concrete work. Then I would call on a pupil to give a problem, and I would solve it with bundles and single straws stuck in the box. Now, I gave them this to do correctly : John has 24 straws (they laid out two bundles and four straws on their desks) and he gave me one 1 bundle and 8 straws. This puzzled them for a minute, but they soon solved it by untying one of their bundles. Then I gave them more, until the plan was firmly fixed. Then I wrote on the board 24—18. A pupil said : I take one of the two 10s and untie it, and so have fourteen ; taking 8 leaves 6. What must I put under the line? 6 was the answer. Then I gave them other concrete examples, and had them represented on the board.

I feel that my class have clear ideas as far as they have gone. It dispenses with borrowing. I say I have not enough straws, so I take one of the bundles and open it—remember there is one less bundle.

The only objection I see is that it takes time.—*Miss A. W. S., in the Teachers' Institute, New York.*

Notes and News.

ONTARIO.

Mr. Tilley, the energetic public school inspector for Durham, has devised a system of promotion examinations, which on its first trial recently proved a perfect success. The method adopted was as follows :—The questions, prepared by the inspector, were printed, and the required number of copies were sent to one trustee in each section. Each teacher presided on examination day at a school that was not his own, and the parcels of questions were not opened till they were brought to the presiding teacher in each section by the trustee who had them in charge. The examinations were held on Friday, and by Tuesday the answers, properly classified, were all in the hands of the inspector. Not a single parcel of questions went astray and there was only one slight mistake made in the whole county. The number of candidates was 650 and the number of those who passed in the various divisions was over 400.

Out of 120 students who went up for examination in Queen's College this year seventy-eight were plucked.

The Synod of the Presbyterian Church in Canada for the Hamilton and London district resolved with apparent unanimity to memorialize the Ontario Government and Legislature with a view to securing a different footing for the Bible in the public schools of the Province. At present the Bible may be read as a devotional exercise, the pupils of those parents who object to their being present being allowed to absent themselves. What the body above referred to want is to get the Bible introduced in all schools as a class book leaving it open to the dissatisfied minority in any locality to protest against its use. Since the adoption of the resolution to memorialize the Government one member of the Synod has written a public letter in which he admits that he did not approve of the motion but refrained from voting against it through fear of being misunderstood. It would be interesting to know how many others were averse to allowing the resolution to pass. At all events the confession of even one member very greatly weakens the force of the movement and detracts from the weight to which a memorial from such a body would otherwise be entitled. Simple as the change proposed may seem it is really very important, and it is not likely to be assented to by the Legislature without further agitation of the question.

The representation of the Greek tragedy, "Antigone," at University College a few days ago was a great success in almost every respect. The management of the affair fell very largely into the hands of Professors Hutton, Pike, and Ramsay Wright, and of Mr. Vines the assistant to Prof. Hutton. The extemporized stage and "properties" suited the play admirably, and the various actors rendered their *roles* well, some of them displaying a good deal of histrionic ability. The music, to which Mendelssohn has set the play, was well executed by Mr. Torrington's orchestra, the adaptation of the score to the Greek text having been skilfully accomplished by Prof. Ramsay Wright. The audiences were large and appreciative on both nights of the representation, and those who wished to understand something of what was said by the different characters had an opportunity of gratifying their curiosity by purchasing, as a libretto, Campbell's admirable translation of "Antigone" in English verse. There is good reason to believe that the Toronto attempt to reproduce a genuine Greek play was even more successful than the one made some time ago at Harvard.

On Saturday, April 29, the Minister of Education presented the prizes to the successful competitors amongst the students in the Ontario School of Art, for the session of 1881-2. The prize list is as follows :—I. Drawing from the antique : 1. John D. Kelly, Dartmouth, Ontario—Gold Medal, given by the Education Department ; 2. Donald McNab, York Township—Silver Medal, given by President of the Ontario Society of Artists ; 3. Diploma to Arthur Alexander, Toronto ; 4. Diploma to George Reid, Wingham ; 5. Diploma to G. W. Atkinson, Oshawa ; 6. F. C. V. Ede, Markham. II.—Shaded Drawing from the Flat, diplomas to : 1. G. Bridgman, Toronto ; 2. D. McNab, York ; 3. Miss Elizabeth Delaporte, Toronto ; 4. Miss F. G. Lambe, Toronto ; 5. Miss M. Grundy, Yorkville ; 6. Samuel Wright, Toronto. III.—Design, diplomas to : 1. Henry Blatchley, Toronto ; 2. Miss A. Grundy ; 3. Miss F. G. Lambe ; 4. Miss Ida Banting, Summerhill, Ontario. IV.—Mechanical, diplomas to : (1) J. S. Phillips, for architecture, and (2) R. F. Nie, for machine drawing. Diplomas were also awarded to a number of students for proficiency in more elementary work.

The last number of the *College Times*, published by the "Boys" of Upper Canada College, contains a pleasantly written sketch of the Hon. Adam Crooks, the first of a series of sketches of "Our Old Boys." The *Times* is well got up and neatly printed.

The contract has been let for the erection of a new wing to the Milton Model School. Accommodation will be provided for three additional departments.

Mr. A. M. Taylor who for about four years was first assistant in the Clinton model school, has been appointed head master of Ingersoll model school. Mr. Taylor is a very young man for the position, but his success as a scholar and a teacher has been such as to justify the appointment. He holds a first-class, and is an under graduate of Toronto University. He is spoken of in the highest terms as a teacher by the local press, and much regret has been expressed at his departure from Clinton.

Mr. S. F. Passmore, late assistant in Orangeville high school, has been appointed head master of Port Dover high school.

NOVA SCOTIA.

The Annual Convocation of Dalhousie College for the conferring of degrees &c., was held in the Legislative Assembly Room on the 26th ult.

It is announced that the Council of Public Instruction has authorized the establishment of County Academies (on the usual conditions) at Windsor for the County of Hants, at Kentville for the County of Kings, and at Port Hawkesbury for the County of Inverness.

The annual meeting of the Teachers' Association for Inspectoral District No. 4 (Counties of Annapolis and Digby) was held at Annapolis on Thursday and Friday, 27th and 28th ult. Papers were read as follows: "Needed Reforms in our Public Schools,' Mr. J. A. Balcom; "the Successful Teacher," Mr. Wm. E. Reade; "the best Method of teaching Geography," Mr. Jas. P. Nowlan: "Improved Methods of Teaching since 1848," Mr. Phineas Whitman; "The Teacher's opportunities and how to improve them," Mr. N. E. Butler. Oral lessons: on Decimals Fractions, Mr. Henry Munro; on Analysis, Mr. A. D. Brown; on Subtraction, Miss. Bonyman. The Association was ably presided over by the inspector of the district, L S Morse, A.M. The Superintendent of Education was present and addressed a crowded public meeting on the evening of the 27th.

The death is announced of the Rev. Dr. Hannan, Archbishop of Halifax. Before his elevation to the Archiepiscopal see Dr Hannan was for many years, both before and after the passing of the Free School Act, member of the Board of School Commissioners for the City of Halifax, and as such rendered good service to the cause of education. The deceased prelate was in his 61st year and died after a very short illness. As head of the Roman Catholic Church in the ecclesiastical Province comprised of the dioceses of Halifax, Arichat, St. John, Chatham, Charlottetown, St. Johns (*Newfld.*) and Harbor Grace, he was widely known and highly esteemed.

An Association under the name of the "Acadian Science Club," for the prosecution of Scientific Studies and investigations, has been formed by some of the teachers of Inspectoral District No. 5 (Counties of Kings and Hants). The Club has been organized with especial reference to the Science-teaching outlined in the new Course of Study. The programme of the Club comtemplates courses of lectures, summer meetings for excursions and field work, correspondence between members &c., &c. The following are the officers of the "Acadian Science Club:"—President, Albert Coldwell, A. M., Instructor in Natural Science, Acadia College. Directors, C. W. Roscoe, Inspector of Schools; A. J. Denton, A.B.; J. F. Godfrey; W. P. Shafner, A.B.; W. W. Saunders. Secretary and Treasurer, A. J. Pineo, A.B.

MANITOBA.

At an adjourned meeting of the Protestant section of the Board of Education recently held, the resolutions relating to the Normal School Department that were introduced by the Superintendent at a previous meeting were taken into consideration. On motion of the Superintendent, seconded by Mr. Hall, they were unaminously adopted in the following shape, and the Superintendent was instructed to send a copy of them to the Board of Protestant School Trustees for their concurrence, and to ask His Honor the Lieutenant Governor-in-Council for the necessary legislation to enable the Board to take action upon them, after which the meeting adjourned:—

1. That a Normal School Department be established in connection with the Protestant public schools of the City of Winnipeg, and that this Department be opened at the commencement of the next term of the school year.

2. That the two terms of this Department shall correspond to the terms of the school year; and the professional course shall be completed in one term.

3. That an annual grant of two thousand dollars be made by the Protestant section of the Board of Education to the Board of Protestant School Trustees of the city of Winnipeg for the maintenance of the same.

4. That the Inspector of Protestant schools for the city of Winnipeg shall direct the teacher of the Department as to his duties and the subjects to be taught, and generally supervise the Department under the direction of the Superintendent of Education.

5. That a teacher be appointed for this Department by the Protestant section of the Board of Education with the concurrence of the Board of Protestant School Trustees.

6. That the Board of Protestant School Trustees shall provide suitable class rooms for the Normal School, and make provision for the practice of teaching by its students in the various schools under their jurisdiction.

7. That applicants for admission to the Normal School department be required to make application to the Superintendent of Education at least one month before the commencement of term; and that in the admission of candidates the interests of all parts of the Province shall be carefully guarded.

8. That in order to be admitted to the Normal school the candidates must be, if males, eighteen; if females, sixteen years of age, and of good moral character; and possess literary qualifications corresponding to the requirements for promotion in standard IX of the programme of studies for use in cities and towns.

9. That all the classes of the city schools shall be open to the students of the Normal School, as the Inspector may determine, without payment of fees.

10. That the Superintendent of Education may require any of the students in training to do duty as occasional teachers, in supplying the places of such of the reqular staff as may be temporarily absent.

11. That in addition to literary subjects which they are able to take, students shall receive instructions in the science of education and art of teaching, and in such other subjects as may from time to time be prescribed by the Protestant section of the Board of Education.

12. That students shall board in such places only as the Superintendent of Education may approve of, and they shall be under the supervision of a clergyman in pastoral charge in the city, whose certificate shall be a condition of graduation.

13. That at the close of the term the Superintendent of Education shall pay every successful candidate whose home is not in Winnipeg his actual travelling expenses incurred in travelling from his home in the province to Winnipeg and back again, together with $2 per week for the Normal School term.

14. That every student shall declare his intention to teach for at least two years, as a condition of receiving a training in the Normal School Department.

QUEEN'S COLLEGE, KINGSTON—CLOSE OF SESSION.

The proceedings in connection with the close of the late session of Queen's College took place on Tuesday and Wednesday, April 25 and 26. A meeting of the University Council—for Queen's is a College with University powers—was held on Tuesday afternoon. This body consists of a Chancellor, the trustees, the members of Senate, and 33 graduates elected by the whole body of graduates. At this meeting the chair was filled by principal Grant, and there were present, besides him Hon. A. Morris, Rev. Dr. Wardrope, Guelph; Rev. Dr. Bell, Walkerton; Rev. Dr. Jardine, Brockville; Rev. Dr. Smith, Kingston; Dr. McCammon, Dr. Saunders, Geo. M. McDonnell, M.A., John A. Moodie, B.A., Rev. Mr. Rogers, B.A., A. S. Drummond, B.A., LL.D., Dr. Fenwick, Rev. Mr. Carmichael, of King; Dr. Dupuis, and others.

After routine proceedings the following new members were introduced. John M. Machar, M.A.; A. T. Drummond, LL.B.; W. B. Curran, M. A., and A. B. McCallum, B.A.

It was agreed that the time of matriculation should be changed from October to June, and a committee was appointed to formulate a plan for working out the change one object being to have the examinations conducted at several local centres.

When the finances of the College came up for consideration Principal Grant stated that there had been for some years a deficit of $100 per annum, that serious losses had been sustained which caused a diminution of income, and that additional equipment was absolutely necessary, at least two more professors being required. In all $6,900 were needed in addition to the present revenue, and if the college was to be equipped as it should be, it would be necessary to raise that sum. There were four ways of getting out of the difficulty:—First, by eating into the capital; second, to raise $120,000; third to be content with imperfect equipment; and fourth, to raise $7000 per year for five years, which would give them a breathing spell. Ultimately a committee was appointed to consider the matter and bring it before the trustees.

A. P. Knight, M.A., was unaminously re-elected Registrar, and to fill the vacancies in the Council the following gentlemen were chosen:—A. McKillop, M. A., of Pembroke High School, James Bergir, M.A., of Sydenham High School, and Rev. J. B. Mullan, B. A., of Fergus.

PRINCIPAL GRANT'S LECTURE.

On Tuesday evening the Rev. Dr. Grant delivered a stirring public lecture, taking for his subject, "Our Political Duties." He took the ground that every man in order to be a good citizen must be a "politician," that is must endeavour to make the laws, the institutions, and the practice of the nation better. He may vote if he thinks it worth while, but he must do a great deal more if he is to do his whole duty. He should teach men what to vote for, he should set before them aims worthy of attainment, he should keep an ideal before his own eyes and the eyes of others. The first duty of the citizen to the state is to be loyal to the state, and true loyalty will be a safe regulating principle. Dr. Grant went on to describe Parliament as a kind of incarnation of the people's will and to put on record the very favourable opinion of the present Dominion Parliament he had formed during his intercourse with its members in connection with the Presbyterian Church Temporalities Bill. The

great drawback to its excellence was the system of Government by party which led to "blinding of the intellect, twisting of the conscience, lowering of high ideals, and gradual destruction of self-respect." Parliament is a deliberative assembly only in name, for every member is committed either to or against every proposition before discussion commences. Government by party, Dr. Grant contended, is not necessary and it is pernicious. He did not know whether a remedy was possible but thought that agitation of the question would do good. The appearance of even a few really independent men in the political arena would be a great boon and so would the establishment of some independent organs of public opinion. Meanwhile it is the duty of every man to be loyal to Canada, to be in no hurry to attach himself to any political party, to preserve a calm, unbiassed judgment with reference to all political questions, to be willing to do without the bribes that party offers to its hacks, and to count it an honour to be called on to make sacrifices for his country.

Principal Grant was frequently applauded during the delivery of his lecture. The chair was filled by Mr. Sandford Fleming, Chancellor of the University.

CONVOCATION.

On Wednesday the proceedings in connection with Convocation were held in the College Hall, the Chancellor presiding:—

After the opening services the prizes competed for during the session were distributed, each student being cheered lustily as he stepped forward to receive the awards. There was great applause as Prof. Dupuis handed the prize in chemistry to a lady, the first time such a thing had happened during his fifteen years' connection with the University. He alluded to the nature of the contest for the prize, remarking that it was "manfully" won, an observation which caused renewed cheers, continued during the time Miss Maggie M. Spooner advanced to receive the reward of her labour. In tendering the Governor-General's prize to Mr. John Hay, of Pinkerton, the Chancellor announced that His Excellency would continue in the same manner to encourage education in Queen's College. The winner of the Prince of Wale's prize was Mr. C. J. Cameron of Lachute. Mr. W. Harty presented the gold medal donated by himself for proficiency in political economy, and promised to give similar prize in future every third year. The Chancellor's medal was given to Mr. R. Fuguson.

After the ceremony of conferring M.A., and M.D., degrees had been performed the Chancellor delivered a suggestive and practical address to the graduating class. Mr. J. R. O'Riely was elected to deliver the valedictory of the year and acquitted himself with credit.

The honorary degree of D.D., was then conferred upon the Rev. James P. Sheraton, President of the Protestant Episcopal Divinity School of Toronto, and the degree of LL.D., on George Paxton Young, M.A., who fills the chair of Mental and Moral Philosphy in University College Toronto. Dr. Williamson in presenting these two gentlemen to the Chancellor dwelt at some length on the educational work each had accomplished and the grounds on which the honour was conferred. His eulogium on Prof. Young was a very high one and that gentleman made an admirable response, incidentally avowing his opposition to university consolidation as it would tend to make examining, instead of teaching the all in all of a university education.

Principal Grant, who had been referred to by Prof. Young as in favour of consolidation, explained his position on the question, stating his belief that consolidation of colleges would be a mistake.

CONVERSAZIONE.

The evening entertainment on Wednesday was the most successful of the kind in the history of the College. The proceedings consisted of a reception by the Chancellor and Principal with Mrs. Fleming and Mrs. Grant, a musical and literary entertainment varied by addresses, and chemical and physical experiments conducted by Prof. Dupuis of Queen's and Dr. Bayne of the Royal Military College.

One of the most interesting incidents of the whole closing proceedings was a presentation to Dr. Williamson on his retirement from the chair of Physics and Mathematics which he has filled for many years. The presentation was in the form of a cheque for $1000 subscribed by the Alumni of the University. The address accompanying it was read by James Maclennan, Q.C., and in response Prof. Williamson made a suitable reply.

TRUSTEES' MEETING.

On Thursday morning the Board of Trustees of the College held a business meeting, with the Hon. Alex. Morris in the chair. After hearing the deputation appointed by the Council to wait upon them in connection with the raising of additional revenue, it was unanimously resolved to endeavor to raise $7,500 a year by subscriptions payable annually during the next five years, and a Committee was appointed to carry out the Scheme. This Central Committee, composed of Principal Grant, A. Gunn, M. P., G. M. Macdonnell, and R. V. Rogers, will appoint local committees and organize the movement. The trustees accepted Dr. Williamson's resignation and assigned him the position of astronomer to the University with a salary of $500 a year. Rev. D. Ross, B.D., of Lachine, was appointed lecturer on apologetics, and Rev. R. Campbell, of Montreal, on political economy, for the next session. The question of selecting a successor to Dr. Williamson was referred to a committee with power to deal with the matter.

Readings and Recitations.

VIA SOLITARIA.

AN UNPUBLISHED POEM, BY HENRY W. LONGFELLOW.

(From the Independent.)

Now that our best and sweetest poet has left us, rending by his departure the veil of that sanctuary—his inmost life and feeling—it may not be unlawful to publish what would have been sacrilege before, the above touching poem, not written for the public eye, but simply to give utterance to heart-felt crushing sorrow after the death of his wife in 1861. It was sent to me by a friend in Boston some years ago after my own great affliction, and has, therefore, a double sacredness to all who have passed through a similar sorrow. It will be read by many with tearful eyes, when they remember how long and patiently, with what brave and uncomplaining heart, he has waited at the "station," till now at last, "the parted" are "one."

H. M. GOODWIN.

Olivet College, Mich.

Alone I walk the peopled city
  Where each seems happy with his own;
Oh! friends, I ask not for your pity—
    I walk alone.

No more for me yon lake rejoices,
  Though moved by loving airs of June,
Oh! birds, your sweet and piping voices
    Are out of tune.

In vain for me the elm tree arches
  Its plumes in many a feathery spray;
In vain the evening's starry marches
    And sunlit day.

In vain your beauty, summer flowers;
  Ye cannot greet these cordial eyes;
They gaze on other fields than ours—
    On other skies.

The gold is rifled from the coffer,
  The blade is stolen from the sheath;
Life has but one more boon to offer,
    And that is—Death.

Yet well I know the voice of duty,
  And, therefore, life and death must crave,
Though she who gave the world its beauty
    Is in her grave.

I live, O lost one, for the living
  Who drew their earliest life from thee,
And wait, until with glad thanksgiving
    I shall be free.

For life to me is as a station
  Wherein apart a traveller stands—
One absent long from home and nation,
    In other lands.

And I, as he who stands and listens,
  Amid the twilight's chill and gloom,
To hear approaching in the distance,
    The train for home.

For death shall bring another mating
Beyond the shadows of the tomb,
On yonder shore a bride is waiting
Until I come.

In yonder fields are children playing,
And there—Oh, vision of delight!—
I see the child and mother straying,
In robes of white.

Thou then, the longing heart that breakest,
Stealing the treasures one by one,
I'll call thee blessed when thou makest
The parted—one.

Sept. 18, 1863.

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

CONVENTIONS FOR MAY.

County or District.	Place of Meeting.	Date.
Chatham	Chatham	May 4 and 5
E. Northumberland	Brighton	" 4 " 5
Prince Edward	Picton	" 12 " 13
N. Hastings	Madoc	" 18 " 19
Lennox and Addington	Napanee	" 18 " 19
N. Wellington	Mount Forest	" 19 " 20
Russell	Clarence Creek	" 22 " 23
E. Grey	Meaford	" 25 " 26
S. Grey	Flesherton	" 25 " 26
N. Huron	Brussels	" 25 " 26
Lincoln	St. Catharines	" 25 " 26
W. Middlesex	Strathroy	" 25 " 26
E. Victoria	Lindsay	" 25 " 26
Dufferin	Shelburne	" 25 " 26
N. York	Newmarket	" 26 " 27

MANITOBA.—The Sixth Convention of the Manitoba Teachers' Association opened in the Central School, Winnipeg, on the forenoon of March 10th, with the President, Rev. W. C. Pinkham. Supt. of Education, in the chair. There were present Mr. Berier, Supt. of Education for the Catholic Schools of the Province; Rev. Mr. Cochrane Indian Missionary at Pequis; Rev. Mr. Douglas of Morris, Inspector of Schools for Provencher; Mr. J. B. Somerset I. P. S. Winnipeg, together with about forty teachers from all parts of the Province. That such a great number should be present, considering the difficulties of travelling, shows how deep an interest is taken in the work of the Association. The minutes of the last meeting being read and approved the regular business of the Association was then proceeded with. Mrs. Hawksett having resigned her position as Treasurer, Miss S. L. Harvey was chosen in her stead. The Secy. reported that having communicated with the Publishers of the CANADA SCHOOL JOURNAL he had obtained from them a promise to grant to members of the Association, the paper at the rate of sixty-five cents per year, and strongly urged all the teachers present to subscribe. The President explained that the Committee appointed at a preceding meeting to draft a programme of study for the schools of the Province, had completed their work as far as pertained to the cities and towns, and hoped to be able to bring in a report relative to Country Schools before the meeting closed. The report which was principally the work of Messrs. Stewart and Somerset was then read, and after some discussion was referred back to the Committee to have it completed and printed. Mr. Somerset explained that the programme presented was not a permanent one, but issued only on trial and thought that in another six months, when the teachers were prepared to give their opinion concerning the practical working of it, something could be adopted that would have very few faults. The object of having such a programme was to enable the teachers throughout the whole Province to work together, and to make the work in schools as systematic as possible. He went on to explain how the programme could be extended to cover the work done in High Schools, and said that it was the intention of the Committee to add two standards to the ten already established in the cities and towns, to take up the work done in High Schools. He hoped that the teachers of the Province at the next meeting of the Association would be ready to suggest changes in the programme which would make it better suited to the work done in the schools. The president supplemented the remarks of Mr. Somerset, showing that the idea of issuing a programme of this kind was very inportant as it made the work of the Common School lead to the work of the High School, and there the pupil was trained for the University. He considered that the three should be inseparably connected, and that the work done in one should be just a continuation of the work done in another. He thought that the plan of uniting the High and Common Schools, was a good one as being more economical than any other: and for some years yet, the people here would have to practise economy as the money grant for educational purposes is very small. It being noon the meeting adjourned till 1.30 pm. *Second Session*,—In the afternoon Rev. Mr. Douglas of Morris read an excellent paper on the "Object of a Common School Education." He commenced by pointing out the difference between the man of trained mind, and the man whose mind was uncultivated. The object of our Common School Education was to furnish the pupils with well regulated minds. They should be taught industry, attention, and how to concentrate their minds on one point. They should be taught to use the reason, and here is the most difficult part of the teacher's work: children are accustomed to reason from what they perceive through their senses, they must be taught to reason in the abstract; they must be taught to be moral. An education which has no moral back-bone in it, will starve the intellect and impoverish the heart. To obtain information is another object in going to school. Let our Common Schools make it their chief object to edify, to build up a force of thought which can be turned to good in seeking to advance the interests of our race and country. The reading of this paper was followed by an interesting and profitable discussion in which the intellectual and physical training were considered. Mr. Springer, Winnipeg, then read a paper on Reading; showing how he would introduce it into school, and how he would teach it to all the higher classes. He held that there is not sufficient attention paid to distinct pronunciation and proper expression, and gave his plan for overcoming such difficulties. Recitations are necessary in order to make good readers. The discussion following the reading of this essay took a very practical turn, and many good methods of securing interest, and having the children read intelligently and naturally, were given. *Third Session*.—At the forenoon session on Friday, Mr. Blakely introduced the subject of Arithmetic explaining his method of teaching the four simple rules. He formed a class from some of those present, and by writing on the board a table which he used in teaching addition and subtraction went through an exercise with the class. The system of teaching gave every satisfaction and it was decided that the table should be printed for the use of the teachers throughout the Province. The discussion which followed elicited many good remarks from those present. Mr. J. H. Stewart, First Vice President of the Association, then read a paper on "The Literary value of English Grammar." He pointed out that the study of the subject as taken up in our schools is, notwithstanding the expressions of many learned men to the contrary, of great practical use in after life. He mentioned Gray and Macaulay as examples of men whose works are great because they are pure, and contended that even the writings of the sage of Chelsea would have been better had he paid more attention to the rules of grammar. The common text books are not at all suitable to the work done in Common Schools, they are too full on some points and contain nothing on others, there is too much notice given to names, and composition (which should be inseparably connected with grammar) is almost neglected. He did not believe in pupils being able to name the figures of speach without being able to use them. Definitions are good things, but grammar should not be all definitions: elegance of expression is over looked in most of our works and to obtain this is perhaps the great object in studying the subject. A discussion followed the reading of Mr. Stewart's paper, bearing principally upon analysis. In the afternoon Mr. Somerset I. P. S. Winnipeg introduced the subject of composition, and explained how he would set about teaching it, placing on the blackboard a division of his subject as follows;—First step: order of presentation; subject and predicate; modifications of subject and predicate: connection of isolated statements, subjects or themes; complex sentences; punctuation marks: quotation, exclamations, intrerragation marks; paragraphs; direct and indirect statement; rhetorical and grammatical arrangement. He then explained how grammar and composition could and should be taught together until the child had reached as far as the third book, and then the subject need not be divorced. Children should be taught to build rather than to dissect. They will, by adding words to sentences already formed, see their connection at once and will learn analysis unconsciously. The important thing is to give the idea,—the definition is of secondary importance. Having gone through most of the subject obtaining from the teachers their ideas, the speaker finished his paper by promising to resume the subject on a future occasion as this was the wish of the Association. Mr. S. R. Eaton of Winnipeg Business College, then introduced the subject of teaching book-keeping to junior classes. He said that book-keeping should be taught earlier in school, children of ten and eleven could take up the subject to advantage, and not leave the work of four years to be done in quarter of the time. He then gave what he considered should be the first lessons in Book keeping, and showed how these could be followed up by more advanced work. In every exercise he would demand neatness of work, and never permit a pupil to write anything without first understanding it. Votes of thanks having been passed to those who had read papers before the Association, to the Press for so fully reporting the proceedings, and to the President for his deep interest in the work and the able manner in which he discharged the duties of his offices, the meeting, which has undoubtedly been the most successful of the kind ever held in Manitoba, adjourned, the President pronouncing the benediction.

WEST GREY.—This Association held its semi-annual meeting in the High School, Owen Sound, 24th. and 25th. March. The attendance was small at the first forenoon session, but at subsequent meetings it was largely increased, several of the High School students and friends from the town being also present. The proceedings were opened by Mr. J. Armstrong, B. A., and the minutes of previous meeting were read by the secretary, Mr. J. A. Greig, and adopted. The auditors report showed a balance of $115 in the hands of the treasurer, which was made up chiefly by two half-yearly government grants The president suggested the purchase of books for a library as the trustees had given a room for the purpose. In the afternoon Mr. J. H. McCasey, read an essay on "The Responsibilities of Teachers" which was well received. Mr. John Elliott took a fourth class in Literature, and made the selections they read extremely intelligible. His plan of teaching the subject is one calculated to develop thought and cultivate taste. He concluded the lesson with a few words of earnest, good advice to the children. Mr. A. Miller, B. A., Owen Sound High School, next gave a few well pointed and sound remarks on "Reading." The study of this subject he said, was neglected in the High Schools on the supposition that it was completely taught in the public schools. He would approve of the "Word method" which was the most natural and common sense plan. He then proceeded to give some excellent hints on several points connected with teaching the subject, and to exemplify his meaning he read, with excellent effect, "The Passage of the Red Sea." The reader was warmly applauded. The following committee was, on the motion of Mr. Walmsley, appointed on nomination of officers: Messrs McCasey and Balfour, Misses Henry and Smith. Mr. J. L. Robertson, of the publishing house of W. J. Gage & Co, was called on to explain the merits of the New Canadian Series of Readers published by that firm, and he submitted a set of the books for approval of the Association. Mr. Boyle of the Canada Publishing Company was also called upon, and after criticising Gage's series in a flippant manner, especially Longfellow's exquisite poem. "The Arrow and the Song," in the Second Reader, which he stated would take a "*long-headed fellow* to know what it meant," he exhibited a set of blank books, or dummies, for the approbation of the meeting. A committee was, on Mr. Greig's motion, appointed to examine Gage's Readers, consisting of Messrs. Elliott, Walmsley, Shaw, Campbell, and McEachern, to bring in a report next day. *Second Day.* The committee on nomination presented their report which was adopted, thefollowing being the officers for the ensuing year: President Mr. J. Armstrong, B. A.; first vice-pres., Mr. A. Miller, B. A.; second, Miss H.Moffatt; secretary, Mr. J. A. Greig; treasurer, Mr. G. W. Campbell; exec. committee, Miss M. Spragge. Messrs. J. Elliott, and T. R. Walmsley, with the elected officers. The committee on Text Books asked leave to defer their report till the Fall meeting to give time to examine the Readers more critically; granted, and Mr. Slater was added to the committee. On motion of Mr. Greig seconded by Mr. Neelands it was resolved that only one series of readers ought to be authorized, and that a copy of the resolution be forwarded to the Minister of Education. The president then introduced Mr. J. L. Hughes, I. P. S., Toronto, who was received with much enthusiasm. He took up the subject of "Kindergarten Training and work," and during the course of his address eli ited many marks of the approval of the members. From the interesting manner in which the subject was treated and the practical benefit which he showed the introduction of a Kindergarten system of teaching would be to the country it was unanimously resolved "That it is highly desirable that a Kindergarten should be organized in connection with the Provincial Model School," also "That a copy of the resolution be transmitted to the Minister of Education." Mr. J. A. Greig proposed a cordial vote of thanks to Mr. Hughes for his highly instructive lecture, and Mr. Miller in seconding it said he was sorry that trustees and others interested in education were not present to hear the admirable address. He remarked that many teachers were able to solve difficult problems in algebra, and otherwise creditably acquit themselves, but were quite ignorant of those first principles of teaching which Mr. Hughes had so forcibly and attractively brought under their notice. The vote was given by acclamation. In the afternoon, Messrs Elliott and Greig were appointed auditors. Mr. J. Hughes, by request, gave a most practical address on "The Art of Questioning," a subject which it is needless to mention was well treated and highly appreciated. On the motion of Mr. Walmsley, seconded by Mr. Elliott, a hearty vote of thanks was passed to Mr. Hughes for his able assistance, and after some further business was transacted the association adjourned.

EAST BRUCE.—The sixteenth semi-annual meeting of the East Bruce Teachers' Association assembled in the Model School building, Walkerton, on the 24th of February, 1882, at 9 a.m. About fifty teachers were in attendance. Mr. W S. Clendening, P. S. I., was elected president, *pro tem.*, and then opened the meeting by prayer. Moved by Mr. Telford, seconded by Mr. King, and carried, That Mr. A. McIntosh be elected secretary, *pro tem.* The minutes of the last meeting of the Association, as read, were adopted. An essay, entitled "Be what you seem," was well read by Miss Sang; it was full of excellent advice. Mr. Leyes read an excellent essay on "Reading." His remarks were eminently practical. The essay was well discussed by Messrs. Telford, Robb, Reilly, Clendenning, and others. "Teachers' Associations," by Mr. Munro, was a good essay and highly suggestive. On motion of Mr. King, seonded by Mr. Munro, it was resolved, that a committee be appointed to preprare a programme for the next meeting of the Association Moved by Mr. Morgan, seconded by Mr. Hunter, and carried, That Miss Ross, Miss Robertson, Messrs. Telford, Munro, Burgess, and Reddon be a committee to arrange a programme for the next sitting of the Association, and give in their report on Saturday morning. Mr. Reddon gave an excellent reading, named "The Earth and Man." He read it well. Grammatical Analysis was next in order. It was taken up by Mr. Morgan, B.A., Principal of the High School, Walkerton, and handled in an able and masterly manner. Mr. Morgan stated that analysis should precede parsing. Messrs. McKay, McCool, Clendening, Robb, and Telford took an active part in the discussion of proper methods of teaching analysis. Mr. Hunter took as the subject of his essay, "A Teacher's Leisure Hours." They should be profitably spent. The teacher should be vigorous, have good health. A healthy mind and a healthy body should go together. Miss Davidson gave a reading which was full of practical suggestions. It was excellently rendered. Mr. McKay, of the Walkerton High School, handled his subject, "Arithmetic," in an able and lucid manner. He is master of his subject. He was cross-questioned by Messrs. Burgess, Leyes, and Telford. On motion of Mr. McGill, seconded by Mr. Adolph, it was carried, that Messrs. Morgan, King, McKay, and Clendening be a committee to answer the questions in the "Question Drawer," on grammar, school discipline, arithmetic, and school law, respectively. Mr. McKeichnie introduced the next subject, namely, "Desirable Changes in Public School Programme." He complained of too many subjects, and pointed out their defects. It was an excellent essay. At 8 p.m., Friday, an entertainment under the auspices of the Association, was given in the Town Hall. *Second Day's Proceedings*:—The morning session was opened at twenty-five minutes past nine, the president engaging in prayer. On the motion of Mr. McKay, seconded by Mr. King, it was resolved, that the Treasurer's Report be adopted. The next was the reading of the Librarian's Report, after which the subject of "Writing" was handled by Mr. Richardson, who makes writing a speciality. He uses the Beatty system of writing. He maintained that those in the 1st and 2nd parts should use slates instead of copies. Messrs. Telford and King took part in the discussion on New Readers. The amendment of Mr. McKay, seconded by Mr. Munro, was adopted, "*Resolved*, by the East Bruce Teachers' Association, that no series of Reading Books should be authorized by the Minister of Education until the opinion of the teachers has been obtained through their local and provincial associations." The following officers were elected:—President, Mr. Telford; Vice-President, Mr. Munro; Secretary, Mr. Morgan, B.A.; Treasurer. Mr. Clendening. The ballot box was used in this election of officers. Moved by Mr. McKay, seconded by Mr. McKeichnie, and carried, that Paisley be the next place of meeting. On motion of Mr. Clendening, seconded by Mr. Adolph, That Misses Robertson and Sang, and Messrs. Leyes, McIntosh, and King be directors. On motion of Mr. Morgan, seconded by Mr. Munro, it was resolved, that Messrs. Clendening and Telford be delegates from this Association to the Provincial Convention. Moved by Mr. McArthur, seconded by Mr. Butchart, and adopted, That the report of committee, in reference to the programme for the next meeting of the Association be adopted. The report on next programme was adopted with the following suggestions:—"It is recommended that outside assistance be obtained, and we beg to suggest either of the following names: Mr. Hughes, Mr. Scott, or Miss Lewis. "We further recommend that the teachers of the town where the Association be held make arrangements for providing a few pieces of music to be given before the Association." "One person to introduce each subject, two to be critics and carry on the discussion." On motion of Mr. Burgess, seconded by Mr. Hunter, it was carried, that the next meeting be held in the month of September, as early as possible in said month. "Geography of Canada," an essay, was given by Mr. McGill. He held the opinion that home Geography should be taught first, proceeding from the known to the unknown, that is, explaining the unknown by the known. It was highly practical. Messrs. McKay, Telford, Clendening, Burgess, Munro, and Butchart discussed the methods of teaching that subject. Mr. Butchart gave a reading, called "Essay on Canada." He read it clearly and forcibly. The following resolution, moved by Mr. Morgan, B.A., seconded by Mr. Clendening, P. S. I., was passed by the East Bruce Teachers' Association:—"Whereas, in the Providence of the Almighty God, there has been removed from our midst, in the person of the Rev. Dr. Ryerson, one who has spent a life of great activity and usefulness in establishing and perfecting our Educational System, and who, during a long life, has been the teachers' most faithful friend and adviser, and in whom they have suffered an irreparable loss; the teachers of East Bruce Association hereby express their deep sympathy with the bereaved family in their great affliction." The following resolution of condolence, moved by Mr. McKay, seconded by Mr. Burgess, was passed by the East Bruce Teachers' Association:—"We, the members of the East Bruce School Teachers' Association, having heard of the recent death of Mr. S. A. Marling, M.A., High School Inspector, avail ourselves of this opportunity to express our deep sense of regret

at the loss that the educational staff of the province has sustained; and, also, hereby tender to his widow our heartfelt sympathy in these days of her sadness and sorrow, and we fail not to pray that God may grant her all the consolations of His grace." The Association then adjourned to meet again in September.

HALDIMAND.—The regular semi-annual meeting was held in the school building, Hagersville, on Friday and Saturday, March 17th and 18th, 1882. The President, Miss Dalton, ably filled the chair. The minutes of the last meeting were read by the Secretary, and, on motion of Mr. A. J. Hewson, seconded by Mr. Saunders, were adopted as read. The Treasurer gave a financial statement of the Association, which showed a balance on hand of $114.24. A communication was read from the Secretary of the Northumberland Teachers' Association, respecting the advisability of having a competent person appointed to conduct Teachers' Institutes in the various Inspectorates of the Province. Also one from Dr. McLellan, expressing regret at his inability to be present. The following committees were appointed: to select officers for the ensuing year:—Messrs. Hind, Pugsley, Duff, Miss Hiseler and Miss Urmy; to draft a programme for the next meeting of the Association: Messrs. Hewson, Davidson, Coghill, Miss Goodyear and Miss Buchanan; on condolence: Messrs. Kemp, Cole. Park, and Miss Dalton. Mr. Robertson, who represents Messrs. Gage & Co., of Toronto, being present addressed the Association on the proposed change in the school readers, and exhibited a set of readers published by Messrs. Gage & Co., and suitable for use in Canadian Schools. He stated that they were based on one of the best series of readers published in England, prepared by Professor Meiklejohn, of St. Andrew's University and edited by Canadian educators of the highest ability, and practical experience. The following committee was then appointed to examine the readers, and report to the Association in the afternoon—Messrs. Hind, Hill, Hewson, Moses, Miss Kirkland and Miss Buchanan. The next item taken up was how to make the promotion examinations more successful. After a somewhat lengthy discussion by Messrs. Moses, Hind, Hewson, Hill, Shields, Morgan, Davidson and Miss Buchanan, it was resolved that it would not be advisable to make any changes for the present. On assembling in the afternoon Mr. Hind took up the subject of school punishments. He stated that the beautiful theories advanced by some on the subject could not be carried out in practice. He dwelt for some time on the various kinds of punishments usually resorted to by teachers, pointing out those that were objectionable. He advised teachers to master themselves before attempting to govern the pupils. He pointed out offences for which corporal punishment should not be resorted to. He advocated the idea that teachers, when administering corporal punishment, should make the child feel that it was for its own good. The paper was full of practical hints, such as could only be given by a practical and successful teacher. At the conclusion of this paper a lively discussion followed, participated in by Messrs. Robertson, Hill, Moses and Hind. L. G. Morgan. B.A., next addressed the Association on Hygiene. He introduced the subject by showing what an important being the Creator intended man to be. He then enumerated the chemical constituents that enter into the composition of man, and pointed out the most nutritious kinds of food to eat in order to build up the system. He explained the necessity of all being familiar with the laws of health, which are plain and simple. The address was very practical, and was listened to throughout with wrapt attention. Mr. Robertson next explained Gould's Arithmetical Frame, which he described as a time-saving piece of apparatus of great utility. The Committee on Text Books handed in the following report:—"We, your committee, appointed to consider and report on the subject of Text Books, beg leave to submit the following: Having examined the Meiklejohn series of readers, published by Messrs. Gage & Co., we consider them much superior, both as to literary merit and mechanical execution, to the readers now in use in the Province of Ontario." On motion of Mr. Moses, seconded by Mr. Hill, the report as read was adopted. On Friday evening a lecture was delivered in the Methodist Church under the auspices of the Teacher's Association by the Rev. Mr. Laidlaw, of Hamilton, to a large and appreciative audience on the subject "Our Successors." The subject was treated in such a manner as to call forth the hearty and repeated applause of the audience as the lecturer graphically reviewed some of the features of the past, rapidly indicating the causes of many of the great social changes of the present century, and brilliantly placing in contrast the greater future of the "coming race." *Second Day.* The Committee to nominate officers for the ensuing year reported with the following result:—President, H. E. Kennedy, B.A.; Vice-President, Miss Minnie Brown; Secretary-Treasurer, C. Moses. Committee of Management—Wm. Egbert, David Duff, A. J. Hewson, Miss Black and Miss Buchanan. Auditors—R. Hill, A. B. Davidson, B.A. The next subject taken up was Map Drawing, by Mr. Egbert. He showed how maps of all the continents could be drawn by means of diagrams, and illustrated his mode of teaching the subject by drawing on the blackboard the maps of Asia and Europe. The practical hints thrown out by Mr. Egbert cannot fail to be of great benefit to the teachers who had the pleasure of listening to him. Miss Brown next showed her method of teaching the Simple Rules of Arithmetic. Her method of presenting this subject before the minds of young pupils was much admired by all present. In fact it was the best lesson in Arithmetic ever given before the Haldimond Teachers' Association. On resuming her seat she was greeted with rounds of applause. At this stage of the proceedings Miss Hiseler gave a Reading in a clear and effective manner. On resuming in the afternoon Mr. A. Cole, B.A., took up the subject of Algebra. He first explained the points of difference between Algebra and Arithmetic. Then he gave a variety of solutions to a number of type problems, pointing out the advantage of one solution over another. He concluded a very instructive lesson by showing how to find out the day of the week of any particular event, the date being given. The Question Drawer, which proved a very interesting and instructive feature of the programme, was next taken up. The Questions on School Law were answered by Mr. Moses, on School Discipline by R. Hill and W. Hind, and on English Grammar by A. B. Davidson, B.A., and H. E. Kennedy, B.A., principals of the Caledonia and Cayuga High Schools respectively. The Committee on the programme for the next Association handed in their report, which read as follows:—"Report of Committee to prepare a programme for the next meeting of the H. Teachers' Association:—Teaching a lesson on Third Class Literature, Mr. Clark and Mr. John Catherwood; Physical Geography, Mr. Hill; Book-Keeping, Mr. Murphy and Mr. Saunders; Junior English Grammar, Miss Dalton and Miss Urmy; Fourth Form History, Miss Buchanan; a Reading, Miss Sumner: the Teacher and his School, Mr. Moses; Singing, Mr. Pugsley; Drawing, Miss Davis; Geometry, Mr. Nugent; Arithmetic, Mr. Cole; Natural Philosphy, Mr. Hallman; a Lesson on Arithmetic, Mr. Cavanagh; a Reading, Miss Fawell; a practical lesson on teaching composition to junior pupils, Miss Flowers." On motion of Mr. Davidson, seconded by Mr. Hewson, it was adopted as read. The Committee on Condolence next reported as follows:—"We, the teachers of the H. T. A., take this earliest opportunity of expressing our deep regret at the sudden demise of the late Chief Superintendent of Education, Rev. Egerton Ryerson. D.D., LL.D, who so long and worthily fulfilled the duties of that honorable and responsible position, and we cannot fail to recognize the valuable services he rendered in advancing the educational interests of the youth of our land in initiating an Educational System second to none, and we feel that his name must always occupy a prominent position in the history of our country in its earlier struggles for intellectual advancement. We hereby express our deepest sympathy with the family of the deceased, and instruct the Secretary to forward to the family a copy of the foregoing resolution."—"We, the teachers of the Haldimand Teachers' Association, take this earliest opportunity of expressing our deep regret at the loss sustained by the Province of Ontario in the removal by death of S. Arthur Marling, M.A., and appreciating the valuable services rendered by him to the cause of education, desire to express our unqualified approbation of the manner in which he so efficiently discharged all the duties pertaining to his difficult and arduous position and to tender to the bereaved family our hear felt sympathy in their deep aflliction." On motion of Mr. Kemp. seconded by Mr. Cole, it was adopted as read. It was then moved by C. Moses, seconded by A. J. Shields, that the next meeting of this Association be held at Caledonia in the month of October. It was moved in amendment by Mr. Kennedy, seconded by Mr. Murphy, that it be held at Cayuga. Original motion carried. It was moved by Mr. Davidson, seconded by Mr. Hill, that the thanks of the Association be tendered to the teachers of the Hagersville Public School, and to the ladies of the village of Hagersville who so kindly entertained the lady teachers while in attendance at the Association. The Association then adjourned to meet in Caledonia in October next.

REVIEWS.

We have received from *Messrs. S. R. Winchell & Co. Publishers, of Chicago*, Part 1st, of a series of School Songs. by H. W. Fairbank. They supply a want long felt in our schools. and as far as the primary grades are concerned, (for which alone the 1st Part is issued), they fill it satisfactorily. The importance of constant musical exercises on Public School system cannot be over estimated, whether they be considered in the light of recreation, of an educational aid, or as the best cure for weariness, lassitude, or disorder. The main difficulties have been the choice of suitable selections for singing, and the price usually charged for such collections of music. When we say that the selections in the little book before us are uncommonly good, and that in large quantities they can be supplied at five cents a piece, we believe that no further endorsation is necessary. We should like to see them used everywhere.

The same publishers have also on trial a very cheap little work on language lessons, by Principal Richardson, of Milwaukee. Among the many publications of a similar sort that are being issued everywhere, it is pleasant to find one which takes an entirely new departure in its mode of treating the subject. Apparently very simple and elementary, it is, as far as it goes, really very thorough and cannot fail to be a valuable assistant to every teacher who will make a conscientious use of it. The distinguishing characteristics are, 1. Perfect simplicity combined with thoroughness, 2. Making the pupil do the work himself, 3. The constant indirect repetition of every principle enunciated. The work is evidently the result of long experience combined with a keen insight into the true principles underlying education.

"*Selections from the Latin Poets*," is the title of a neat volume containing selections from the Ciceronian poets Catullus and Lucretius, the Elegaic writers of the Augustan age, and the Epic poet Lucan, edited by *E. P. Crowell*, Prof. of Latin in Amherst College, and published by *Ginn, Heath & Co., Boston*. It contains an "Introduction" to each of the poets and English Notes on the text. The selections are well chosen, the introductions brief but comprehensive and the notes evidently the work of a thorough scholar and an experienced teacher.

MAGAZINES.

THE ATLANTIC MONTHLY for May is a decidedly valuable and interesting number. The department of pure fiction is very strong. It contains chapter VIII and IX of *The Home* of a *Merchant Prince*, by William Henry Bishop; chapters III and V of *Doctor Zay*, a very good story by Elizabeth Stuart Phelps; *Aunty Lane*, one of those good short stories completed in one number, which form a marked feature of this magazine; and the first four chapters of *Two on a Tower*, by the English novelist, Thomas Hardy, who, in our opinion, is not only in the first rank of living writers of fiction but has some claim to the first place in that rank. The poetical contributions on *The Divine Right of Kings*, by Mary W. Plummer; *Sage or Poet*, by Edith M. Thomas: and *Mad River in the White Mountains*, by Henry Wadsworth Longfellow. This poem, the last written by its author, may be briefly described as Tennyson's Brook Americanized. It is remarkable as showing how little the lapse of three quarters of a century had impaired Longfellow's powers. *The Arrival of Man in Europe*, by John Fiske is a very readable popular summary of the results of the investigations of Professor Dawkins and others with regard to prehistoric men. In *Old Fort Chartres*, Mr. Edward G. Mason deals with a subject which belongs as much to the history of Canada as to that of the United States, the stronghold in question having been established by the French in Illinois in 1718 as a link in the chain of defensible places that was to secure to them forever the valleys of the St. Lawrence and the Mississippi. Mr. Hilgard continues his discussion of *Progress in Agriculture by Education and Government Aid*; Elizabeth Robins writes on the *Evolution of Magic*, and J. Lawrence Laughlin furnishes a financial article on *The French Panic*, The admirable *Studies of the South* is continued, a series of papers which no one should fail to read who wishes to understand American politics whether in the wide or narrow sense of the term. A review of *Renan's Marcus Aurelius; The Contribution's Club*; the valuable classified list of *Books of the Month*, by means of which one can at a glance ascertain whether anything of interest in any department for which he cares has been published in the United States; and a brief notice of Longfellow, who contributed to the first number of *The Atlantic*, and like so many other great names in American literature has from time to time assisted in filling its columns, concludes the number.

Official Announcements.

Instructions as to the July Examinations, 1882,

FOR

CERTIFICATES TO PUBLIC SCHOOL TEACHERS.

In accordance with the Statute and the General Regulations, the July Examination of Candidates, for the year 1882, will be held as follows:—

FOR FIRST-CLASS (Grade C, Non-Professional)—At the Normal School TORONTO, to begin on MONDAY, July 10th, at 2 p.m.

FOR INTERMEDIATE EXAMINATION—At the County Towns and High Schools, to begin on MONDAY, July 3rd, at 2 p.m.

The Professional Examination for First-Class Certificates will begin after the conclusion of the Non-Professional Examination.

The Examination for First-Class Certificates, Grades A and B, will begin after the conclusion of the Professional Examination.

It is indispensable that Candidates, whether from a County or a City, as the case may be, should notify the presiding County Inspector, not later than the 1st of June, of their intention to present themselves for examination. All notices to the Department of intending Candidates must be sent through the presiding County Inspector.

Forms of the notice to be given by each Candidate previously can be obtained on application to any County Inspector.

ADAM CROOKS,
Minister of Education.

EDUCATION DEPARTMENT, TORONTO,
March, 1882.

EXAMINATIONS FOR TEACHERS' CERTIFICATES, 1883.

NON-PROFESSIONAL SUBJECTS.

The Examinations will be upon the same subjects as in 1882, with the following exceptions:—

FOR INTERMEDIATE EXAMINATION.

IN ENGLISH LITERATURE, the works prescribed for 1883 are Scott's "Marmion," with special reference to Cantos V. and VI.; Reflections on the Revolution in France, Bohn's edition of Burke's Works, Vol. II., from "I find a preacher of the Gospel," p. 339, to "austere discipline of the Early Church," p. 376.

IN LATIN, the portions of authors to be read are:—Cæsar, Bellum Britannicum (B. G., B. iv., cc. 20—36; B. v., cc. 8—23); Cicero, pro Archia; Virgil, Æneid, B. V., vv. 1—361.

IN GERMAN, in addition to the Reader, the author to be read is:—*Schiller*, Belagerung von Antwerpen, Der Taucher.

IN FRENCH, in addition to the Reader, the author to be read is:—*Emile de Bonnechose*, Lazare Hoche.

The subjects in Literature prescribed for the First Class Grade C examination in 1883 are:—

Richard II.—*Shakespeare.*
Marmion—with special reference to Cantos V. and VI.—*Scott.*
Reflections on the Revolution in France, from the beginning to "austere discipline of the Early Church," p. 376, vol. ii. Bohn's edition of Burke's Works. —*Burke.*
Dumont's Recollections of Mirabeau.—*Macaulay.*

No particular editions of these texts are prescribed, but the following good ones are mentioned in order to aid candidates:

The edition of Richard the Second in the Clarendon Press series or Hudson's Richard the Second.

Payne's edition of Burke's Recollections (Clarendon Press series).

The following are prescribed for 1883, for First Class, Grades A and B:

CHAUCER.—The Prologue to the Canterbury Tales.
The Nonne Prestes Tale.

SHAKESPEARE.—Antony and Cleopatra. Candidates are recommended to consult some such work as Dowden's Mind and Art of Shakespeare, or Gervinus's Commentaries.

POPE.—Prologue to the Satires.

ADDISON.—The Selections from Addison's Contributions to the Spectator, made by J. Arnold, under the headings (1) Manners, Fashions, and Humours; and (2) Tales and Allegories (Clarendon Press series).

WORDSWORTH.—Sonnets.

MACAULAY.—Life and Writings of Addison.

N.B.—Candidates who take other departments will be required to show, by passing an examination in "Antony and Cleopatra" for 1883, that they have read the play carefully, and that they are in the habit of writing the English language correctly.

☞ No particular editions of these texts are prescribed, but the following good ones are mentioned in order to assist candidates:

Morris's edition of Chaucer's Prologue to the Canterbury Tales and the Nonne Prestes Tale, in the Clarendon Press series.

The edition of Pope's Satires and Epistles, in the Clarendon Press series.

INSTRUCTIONS

FOR THE

GUIDANCE OF PUBLIC SCHOOL INSPECTORS,

As to the duration, renewal and endorsement of Third Class Public School Teachers' Certificates and their extension; also as to the granting of Third Class District Certificates and of Temporary Certificates.

1. The changes made in the School Act of last Session with respect to Third Class County Board Certificates and Third Class District Certificates, render some modification of the Instructions to Public School Inspectors in the Compendium, at page 241, Appendix D, necessary

2. It will be seen that under the first section of this Act, the holder of a Third Class County Board Certificate (when awarded by the Board after passing through the County Model School) becomes entitled to be employed as a duly qualified Public School Teacher in any County of the Province, without being required to obtain the endorsement of the Public School Inspector thereof.

3. The effect of this section is therefore to dispense with the necessity of obtaining the endorsement of the Public School Inspector of the County, when School Trustees therein desire to engage as their Teacher the holder of such Third Class Certificate so granted by the Board of another County.

4. The result of this amendment will therefore be to give greater value to such class of Certificates, which, owing to the uniform examination questions and values assigned through the Central Committee on the results of the non-professional examination and by the County Boards as to the professional examination, have since July, 1881, become nearly equal value throughout the Province. There is the further advantage in the liberty given to Public School Trustees to engage such Teachers, and thus affording to each Teacher better chances of employment, as well as to better adjust the supply of Teachers relatively to the demands therefor.

5. It will also be seen that under the second section of the Act the respective powers of Public School Inspectors and of the Minister of Education in granting an extension of a Third Class County Board Certificate are defined as to their exercise in each case, being now made dependent upon the fitness, aptness, and success in teaching of each Teacher applying, according to the separate and independent reports of the School Trustees employing him, and of the Inspector, to be made to the Education Department by the 1st June in each year. The Teacher is thereupon entitled at the expiration of the term of his Third Class Certificate to apply for an extension, and for such period as the circumstances of his case may justify.

6. In reference to the former Regulations and Instructions to Inspectors, as to the extension of Third Class Certificates, it was provided that extensions should only be granted in two classes of cases:—

(1) To enable the candidate to qualify for a Second Class Certificate and to attend the Normal School, but not to exceed two years.

(2) In the case of a Third Class Teacher, who had many years' experience, and was of proved ability as a Teacher, or of special fitness for the school in which he was engaged, his Certificate might be made permanent, or extended for such a period as the Minister might deem advisable.

The recommendation of the County Inspector in both class of cases was necessary, and also his judgment as to the ability, qualifications, and efficiency of the applicant; also certificates as to satisfactory teaching from Trustees; while the Regulations reserved to the Minister full liberty to form his own judgment upon these recommendations.

7. The object of this amendment is to furnish the Minister with more information of the actual teaching record in each year of each applicant for extension, but it does not alter in any particular the conditions on which extensions can only be granted, under the Regulations, which are still in force in their integrity, and which apply to the two classes of cases above mentioned, and require the special recommendation of the Inspector with every application before the Minister is in a position even to consider it; but with the additional information to be supplied under this amendment, he will be better enabled to deal with each application on its merits, and, if an extension is granted or refused, the record on which the conclusion is based is open for the information of the Teacher and the public.

8. Under the third section of the Act, Third Class District Certificates may be granted, subject to the Regulations of the Education Department, but only valid for the territorial and remote districts named in the third section, and in the northern arts of the Counties of Victoria, Peterborough, Hastings, Frontenac, Lennox and Addington, and Renfrew. These certificates will take the place of the Temporary Certificates authorized under the present Regulations, and will be confined to districts so poor in resources that the Trustees are not able to employ County Third Class Certificated Teachers. This change will do away with a large proportion of Temporary Certificates, which were sanctioned owing to the poverty of such sections. A Board of Examiners is to be constituted for each district, and the result should to secure more efficient teachers in such districts than are now found.

9. The former Regulations as to the granting by Inspectors of Temporary Certificates with the sanction of the Minister continue in full force, and govern each application.

10. It will be seen from the foregoing that the powers of County Boards in granting Third Class Certificates, and in renewing the same, have not been altered or effected by any of the provisions of the School Act of last Session.

ADAM CROOKS,
Minister of Education.

EDUCATION DEPARTMENT (Ontario),
TOTONTO, 24th April, 1882.

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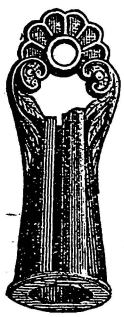

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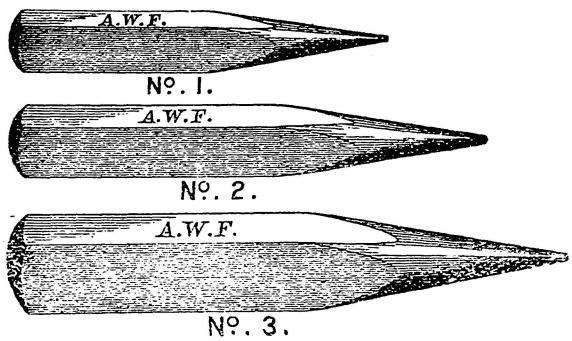

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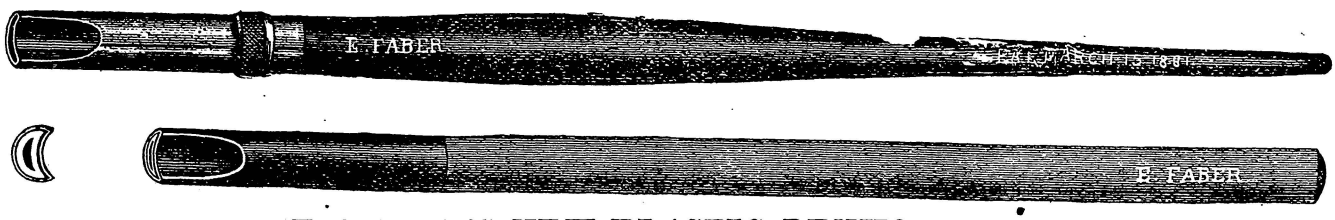

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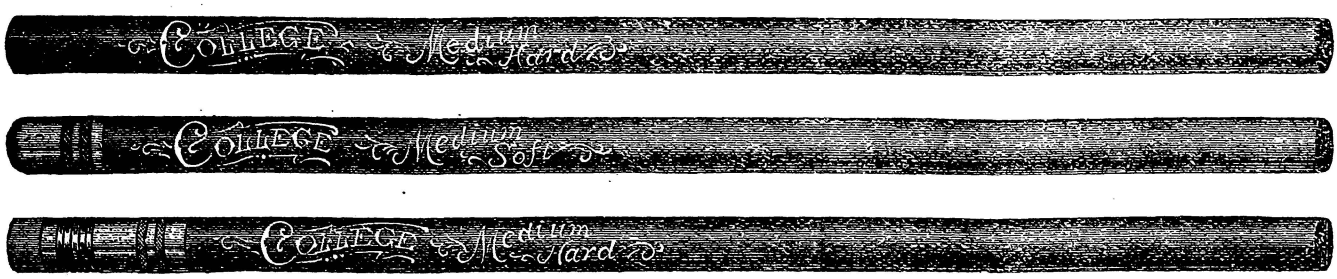

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Statesman, Bowmanville.
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Times, Owen Sound.
Canada Presbyterian.
Christian Guardian.
Catholic Record.
Monetary Times.
Canadian Post, Lindsay.
Chronicle, Whitby.
Advertiser, London.
Canadian Statesman.
Chronicle, Ingersoll.
Tribune, Chatham.
Sentinel, Cobourg.
Times, Port Hope.
British Whig, Kingston.
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Daily News, Kingston.
Guide, Port Hope.
Intelligencer, Belleville.
News, Bowmanville.
Age, Strathroy.
Advocate, Mitchell.
Beacon, Stratford,
Beaver, Napanee.
Review, Peterboro.
Irish Canadian.
Times, Ingersoll.
Journal, St. Thomas.
Courier, Perth.

IN QUEBEC PROVINCE.

Daily Witness, Montreal.
Daily Star, Montreal.
Chronicle, Quebec.
Examiner, Sherbrooke.

IN NOVA SCOTIA.

Presbyterian Witness, Halifax.
Wesleyan, Halifax.
Eastern Chronicle, New Glasgow

IN MANITOBA.

Free Press, Winnipeg.
Portage Times.
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W. J. Carson, London.
D. McArdle, Kingston.
T. O. Steele, Perth.
J. S. Deacon, Ingersoll.
James Brown, Whitby.
W. E. Sprague, Cobourg.
James Duncan, Windsor.
W. R. Telford, Walkerton.
J. H. Forde, Sherbrooke, P. Q.
S. M. Cleveland, Richmond, P. Q.

Highly commended by a large number of Principals of Colleges and Collegiate Institutes and Head Masters of High Schools, among them being:—

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W. Tytler, B.A., Guelph.
J. Macmillan, M.A., Ottawa C. I.
A. Purslow, LL.D., Port Hope.
W. W. Tamblyn, M.A., Oshawa.
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Prof. R. M. Smith, M.A., B. Sc., St. Francis College, Richmond P. Q.

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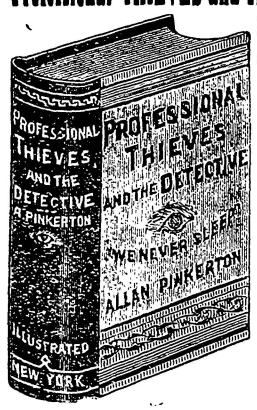

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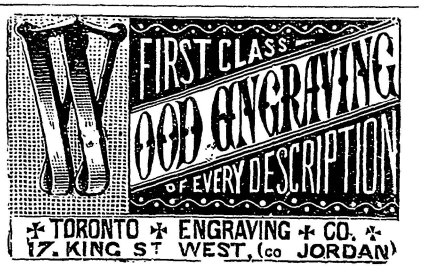

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CANADA SCHOOL JOURNAL HAS RECEIVED

An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course unable to make any distinction in a list containing names from all parts of the United States and Canada.

THE PROFESSIONAL QUALIFICATIONS OF HIGH SCHOOL MASTERS.

The Education Department of this Province insists, and rightly so, on as thorough a professional training as the circumstances will admit of in the case of public school teachers, Each candidate is required to spend a certain time in a county model school before he is licensed to teach at all, and then he is required to show that he has taught successfully for a still longer time before he can rise from a lower to a higher grade. The average time occupied by public school teachers in obtaining first-class certificates is probably not less than ten years, and when they have reached this rank they are still far from being in as good a position on the average as head masters of high schools. This is true of even the fortunate few amongst public school teachers who are head masters of central schools in towns and cities, and who succeed in becoming inspectors of school districts.

The intending high school master, on the other hand, who is a graduate of a university, is allowed to commence work as an assistant without any professional training, however youthful or inexperienced he may be, and after a very brief experience as an assistant he is allowed to take charge of a school. Matters are in this respect not so unfairly arranged as they once were, but something more should be required than is at present required, by way of professional qualification, from those proposing to take charge of high schools. Mere scholastic attainments are not enough—are not even the most important matter to be considered in the selection of a schoolmaster of any grade in the profession.

It is often easier to discern a defect than to point out the best remedy, but one way of minimizing it would be the establishment of a chair of education in connection with University College. A movement is now on foot to reorganize to some extent the staff of that institution, and we would like to see both the authorities of the College and the Minister of Education make an effort to secure the creation of such a department of academical work. But even if nothing of the kind is undertaken it would still be open to the Education Department to exact a longer probation from graduates before they are allowed to become head masters. In many instances the position of head master of a high school means the placing of all the public school masters in the same place in a relation of subordination, and to able and experienced teachers this is a positive injustice when the high school master is an inexperienced youth however thoroughly he may be acquainted with literature, science, or philosophy. A change in the direction indicated would be beneficial alike to the schools and the profession, while it would tend to keep out of the latter many who now enter it for the purpose of making it a stepping-stone to something more congenial or more profitable.

TOWNSHIP INSTITUTES.

At the last meeting of the Wentworth Teachers' Association, Mr. J. H. Smith, the inspector for the county, obtained the sanction of the convention for the adoption of a plan which, if properly worked out, should be productive of great benefit to the teachers in rural schools. His proposal is to ask all the teachers of a township to spend one day together in one of the schools of that township in company with himself, and engage by turns in the actual work of conducting classes in various subjects. None of the time will be taken up in the kind of work usually done at district conventions, such as the discussion of methods. The work is to be entirely practical and the best methods, when thus illustrated, will become models for those teachers whose experience has not been varied or whose opportunities for acquiring professional training have been limited.

Mr. Smith proposes to go through all the townships of his district in succession and to do this at least once a year. His plan is not a new one, but it has not been very often attempted in so systematic a manner as he contemplates, and the result of his experiment will be watched with some interest. It will be strange indeed if some of the teachers do not benefit by it. Those who have had only a model school professional training will have opportunities of making observations from a more advanced point of view than the one they occupied before commencing to teach. What little experience they have had will enable them to gain more useful lessons in teaching in one day than they formerly learned in a month, and even skilled teachers will profit by observing each others' methods. No class of workmen are more in danger of running in grooves than teachers, and the township institute, conducted as Mr. Smith proposes to conduct his, would be the most effective means of preventing this.

TEACHERS' INSTITUTE PROGRAMMES.

One of the practical difficulties in connection with teachers' institutes is the backwardness of those present in taking part in the proceedings. Many a good programme has been spoiled and many a meeting made a partial failure by the want of variety due to this cause. It is not enough that the subjects selected for treatment should be numerous and that they should be entrusted to those who have the ability to handle them in a masterly and interesting way. Indeed those who prepare programmes err more frequently by making them cover too much ground than by including too little. What is wanted in the case of associations, which are permanent organizations, is that more teachers should come prepared to take part in the discussion of practical questions, and that the views of those who prepare papers should be thoroughly and intelligently criticised by a large proportion of those who have heard them read.

As associations meet half-yearly there is no reason why at each meeting the programme should include more than a few topics except the difficulty of filling up the time. It would be much better to limit the number and allow more time to each if there were more readiness on the part of members to contribute. In order to secure this it would be well to appoint several persons to criticise freely each paper or discuss the subject of which it treats. We have before us the programme of an institute held recently in North Wellington which contains some features that might be advantageously copied in other districts. One of these is that while the subjects are given in regular order on the programme no special division or length of time is set apart for any particular one and it is not even stated on which day it will be taken up. This method has the advantage of leaving it uncertain when any subject in which a teacher may be interested will come before the convention, and its tendency will be to secure a better attendance at the meetings; and it has the further advantage of leaving the programme more flexible and therefore less liable to derangement from the unforeseen absence of persons appointed to prepare papers.

Another feature is the appointment of critics under each topical head on the programme. For example, one of the topics is the "Science of Education," to be discussed by the introducer and four critics; another is the "Characteristics of a Good Teacher," to be discussed by the introducer and three critics; and so on through the list. The idea is a good one and we commend it as such to the officers of associations everywhere.

OSCAR WILDE.

This now celebrated apostle of "æstheticism" has come and gone, has been interviewed and *feted*, and has lectured and made his observations. He has left behind him, as we expected he would, an impression on the whole rather favorable to him. He is a man of excellent physique and of good intellectual powers, with youth on his side and the advantage of a good training. He has also the merit of being on the right track though much of the mannerism of himself and his school is calculated to bring both them and their movement into ridicule. All who have any taste or sense of the beautiful will readily admit that, other things being equal, an object should be handsome rather than ugly. It is better, if the cost and durability of a carpet are not affected, to have it made with harmonized colours and a graceful pattern than to have it florid or mottled in appearance. In substance this is Oscar Wilde's contention, but it is too much to expect those who go with him so far to go into ecstacies over blue china or sunflowers. To do him justice he does not bring with him the worst exaggerations of his school and it is to be hoped that his American tour will help him to get rid of some minor ludicrous eccentricities of thought and manner.

The least defensible point in Oscar Wilde's position is his somewhat egotistical assumption that he and his immediate associates are entitled to the chief credit of the movement in favour of a higher kind of art decoration. The movement is really much older than Mr. Wilde himself, and the man to whom, more than to any other, the chief credit is due is the poet, Wm. Morris. But, indeed, there have been many participators in the good work, and much has been effected in the same connection by successive international exhibitions and by the establishment of such institutions for art education as the celebrated one in South Kensington. Men like Ruskin and Hammerton have, by their writings, done much to modify the views of the English speaking world on art in its relation to daily life, and if Oscar Wilde fancies that the inspiration which he has apparently caught from them and other masters is a mere scintillation of his own genius he is committing after all no greater blunder than we see committed by mediocre people every day around us.

VICTORIA COLLEGE.

The proceedings connected with the usual "Commencement" of Victoria University were this year of more than ordinary interest, owing partly to the death of the man who may be said to have been the founder of Victoria College as he was of our Public School system, and partly to the success attending the movement to increase the College staff. As a fitting memorial of the late Dr. Ryerson it has been resolved to endow a chair of "Moral Philosophy and Christian Evidences" to be called by his name. The amount required is $35,000 and with comparatively little effort some $15,000 of that sum has been secured. There is little doubt of the final success of the attempt and in all probability it will be found practicable to increase the amount. The endowment of a chair of Chemistry by Mr. Moore is one of those acts of private munificence which are still too much like "angels' visits" in Canada. Wealthy men are still too much disposed to make their donations to colleges in the form of bequests instead of enjoying the satisfaction of seeing their money disposed of according to their own intentions in their lifetime. If there were a few more public-spirited men in the country like Mr. Moore of Hamilton, Mr. McMaster of Toronto, or Mr. Redpath of Montreal our higher institutions of learning would be in a position to do bet-

ter work, and those who manage them would be freed from many embarrassing anxieties.

With Dr. Nelles' and Dr. Young's protest against the consolidation of teaching colleges every sensible man will be in entire accord. No one college could be made adequate in all respects to meet the wants of such a country as ours and if all existing colleges were consolidated into one, people who did not like that one would soon start another in accord with their own ideal. The great end to be aimed at after all is culture in the better sense of that term, and the best way to diffuse culture is to allow full play to all agencies which by any motive can be enlisted in the work. Whatever may be said in favour of having only one body to confer degrees there is no standing ground whatever for the contention that there should be only one college to do the teaching. The various colleges in Canada are doing a good work each in its own way and the great matter for regret is that they are not all in a position to do it better.

DALHOUSIE COLLEGE.

This now venerable institution does not show, with advancing years, any falling off in vigour or capacity for usefulness. On the contrary it, like some other Canadian colleges, seems to have obtained a new lease of life and to be in a better position than ever to do the work it was brought into existence to do. Mr. Munro, the well known "Seaside" publisher has by his liberality to his *Alma Mater* done much to put her on a better financial footing and it is to be hoped that other distinguished *alumni* of this and other colleges will follow the noble example he has set. Whatever objections may fairly be urged against state-supported institutions for higher education there can be no objection to wealthy citizens taking the common sense course of seeing their money spent in this way during their own lifetime, instead of leaving it to endow colleges after they are dead.

All truly liberal educationists will welcome the sentiments so admirably expressed by Dr. Allison, when he discussed the question of college courses of study. We are in the habit in these modern days of applying the term "mediæval" to anything antiquated by way of reproach; but in this use of the word we do a very great injustice to the Middle Ages in so far at least as higher education is concerned. In those days both sexes were freely admitted to halls of learning and the college curriculums represented the most advanced thought and knowledge of the time. Is this the case now? Certainly not in Ontario at all events when the faculty of a leading college persist in refusing admission to women, and protest against the creation of a chair of political economy lest it might injure the institution by the incidental teaching of party politics. If state support for a college means necessarily a fettering process of this kind then it is easy to predict early and triumphant success for those voluntary institutions which are not afraid of the breezes or even the storms of public opinion. The tree which is sheltered is never deeply rooted.

McGILL UNIVERSITY.

Like the other colleges of Canada McGill, as will be seen by a reference to the closing proceedings elsewhere, is much in need of funds, and Dr. Dawson seems to be equal to the occasion. He has hosts of warm and wealthy friends who have already done much to place McGill College in the very foremost rank of institutions of learning in America, and who will probably respond still more liberally than they have yet done to the appeals addressed to them. The many friends of McGill will be glad to hear of Dr. Dawson's success in overcoming all the difficulties which at present lie in his way.

GAGE'S NEW CANADIAN READERS.

References to what appears in the columns of the *Canada Educational Monthly* are, as our readers know, extremely scarce in the CANADA SCHOOL JOURNAL, but the gross misrepresentations contained in a recent editorial notice of the above series of school readers have induced us for once to act on the truth that occasionally forbearance ceases to be a virtue. The article in question refers to so many passages in the readers, that we have no intention of taking them up in detail. Instead of doing so we select one or two of the *Monthly's* statements about one of the books and lay before our readers the text of the passages which have been misrepresented and misquoted. The passages referred to are to be found in the Fifth Book, not in the Fourth, as the critic in his careless haste states. For convenience we place the extracts in parallel columns :—

Educational Monthly.	*Fifth Reader, p. 372.*
We are told * * * * that the Indians of Manitoba, *representing the different tribes of Half-breeds, Icelanders, French, English, Irish, Scotch, and Mexicans*, jostle one another in the streets of Winnipeg! On the same page we learn that the *stone* with which the brick buildings are faced, *contains all the modern improvements!*	The small wooden buildings which the principal merchants found large enough for the business of six or eight years ago, are being everywhere replaced by fine brick buildings, some of them faced with stone, containing all the modern improvements * * * * Indians representing different tribes, Half-breeds, Mennonites, Icelanders, as well as Frenchmen, Englishmen, Irishmen, Scotchmen, Canadians from the older Provinces and Mexicans jostle one another on the streets, &c.

The italics are the *Monthly's*. Any one who knows anything about the structure of English sentences can see at a glance that the writer of the critique is as ignorant of the first principles of punctuation as he is destitute of ordinary fairness. We shall not insult the intelligence of our readers by adding another word of comment, but content ourselves with assuring them that the spirit and value of the whole article may safely be estimated from the above specimen trick.

Gage's Readers have now been in the hands of inspectors and teachers for a considerable time and the cordial approval extended to them by practical men in all departments of school work is a sufficient offset to the misrepresentations of an interested critic. Equally valuable for this purpose is the favour with which they have been regarded at different teachers' conven-

tions throughout the Province. They have, in many instances, been submitted to thorough inspection at the hands of expert and disinterested committees; in every instance the report has been favourable, often highly eulogistic, and in a large number of cases the reports have been adopted by the Associations which thereby recommend the Readers for authorization. In this way requests for permission to use them have been made by the teachers of Frontenac, Halton, Haldimand, North Wellington, Dufferin, South Oxford, Prince Edward, and Northumberland. In the light of such endorsation the misrepresentations of interested parties appear in their true proportions.

MR. P. A. SWITZER.

To the deep regret of a wide circle of friends Mr. Switzer, who has for some years past held the position of inspector of public schools for the District of Algoma, has succumbed to a disease which long threatened his life and compelled him to discharge his onerous duties under the greatest difficulties. Mr. Switzer successfully filled for some time the position of head master of the Elora high school, and, physical strength apart, was admirably qualified for the post of "guide, philosopher, and friend" of the teachers and trustees of the new district in which his official lot was cast. In spite of growing weakness he never lost his energy and prepared to face the last conflict in harness. He made the town of Collingwood his headquarters and from it he was compelled to make his inspectoral journeys to the Parry Sound, Algoma, and Manitoulin districts partly by stream and partly over highways of extreme roughness. The field of his operations was a large one, and it is time the the Ontario Government were thinking about subdividing it. Those who know how hard Mr. Switzer toiled in his vocation will regret that he was not relieved of some of the work long ago, but it would be doubly a mistake to place his successor in the same difficult position.

Mr. J. B. Ferguson, late principal of the Winnipeg Schools has since his retirement from that position gone into the book and stationery business in company with Mr. Parsons. Mr. Ferguson was a successful teacher, and that his services in that capacity were appreciated is manifest from the address, accompanied by a handsome gold watch, which was presented to him on the occasion of his giving up his recent charge. Like many others Mr. Ferguson is reported to have been fortunate in real estate speculations, and his many friends in Manitoba and elsewhere will be glad to hear of his being equally successful in his new venture. J. H. Stewart, M.A., formerly of Perth, Ontario, who has held for some years the inspectorship of the schools in Winnipeg and the adjacent district, has given up the supervision of the schools and gone into real estate business. Mr. Stewart's services in the cause of education in Winnipeg have been very valuable. He also carries with him into his new sphere the best wishes of those in connection with whom he has been labouring, and was presented with a handsome testimonial on his retirement.

—Nothing travels faster or grows faster than falsehood. Richard Grant White's monstrous misrepresentation of modern education circulated with amazing rapidity and really acquired portentous dimensions while the friends of the assailed system were preparing to defend it. The truth can never be vindicated too promptly. At the meeting of the National Educational Association of the United States held two summers since the question of high schools was discussed with some warmth. A prominent member of the Association asserted that *at that time* a majority of the inmates of one of the State Penitentiaries of Pennsylvania were graduates of high schools. The discussion had scarcely ended when the Association appointed a Committee of its representative men to ascertain if facts afforded any justification of the singular, and, if true alarming, statement made. The gentleman who preferred the charge was placed at the head of the committee of investigation. We need not be greatly surprised to learn that he declined to act and that he did not present himself at the next annual meeting of the Association. During the year, however, the committee under the direction of Hon. J. P. Wickersham, State Superintendent of Education, and now United States Minister to Denmark, made exhaustive inquiries into the matter of the charge preferred. It was found that in the penitentiary referred to out of upwards of four hundred and eighty inmates, not more than *eight* or *nine* had attended high schools for terms however short, while only five, or at most six, were high school graduates. Mr. Wickersham's report, enlarged by the addition of other relevant matter has been published by the National Bureau of Education under the appropriate title of "Education and Crime."

Geographical Notes.

THE GRAND TRUNK AND NORTHERN PACIFIC RAILWAYS.

We gave last month a description of the present condition of the Canada Pacific Railway. The company chartered by the Dominion Parliament to build that line secured the insertion in their contract of a clause intended to prevent any other company from obtaining the right to build a railway across the 49th parallel for 20 years. This has not prevented steps from being taken to create another through route for the produce of the Canadian Northwest to the Atlantic. At this writing the privilege of crossing the United States frontier has not been granted to any other railway besides the Canada Pacific, but efforts have already been made to secure that privilege and they will no doubt be repeated. The transcontinental system contemplated as a rival to the C. P. R. is made up chiefly of the Northern Pacific Railway of the United States and the Grand Trunk Railway of Canada, the intention being to connect them by means of the Midland Railway of Canada and by the construction of intermediate links by way of Sault Ste. Marie, and French River. The capitalists who control the Northern Pacific control also the Manitoba South Western Railway, and it is apparently the intention of the promoters, as soon as permission to do so can be obtained, to connect the latter across the frontier with a branch running northward from the main line of the Northern Pacific. The various portions of this contemplated traffic route from Montreal to Winnipeg are, therefore as follows:—

(*a*) The Grand Trunk from Montreal to Belleville, Port Hope, Whitby, or Toronto.
(*b*) The Midland from Belleville &c. to Gravenhurst.

(c) The Ontario Sault Line from Gravenhurst to Sault Ste. Marie.

(d) The Northern Pacific and its eastern extensions from the Sault to the southern boundary of Manitoba.

(e) The Manitoba South Western from the frontier to Winnipeg and other points in the North-west.

The Grand Trunk from Montreal to Toronto is one of the oldest pieces of railway in Canada and therefore it is unnecessary to say anything more about it here. The Midland is also an old line from Port Hope to Lake Simcoe, but the section of it known as the Grand Junction, connecting Belleville with Peterborough is new, and the loop line from Peterborough to Omemee, which is really a continuation of the Grand Junction, is at present under construction. The Midland is connected with Gravenhurst, the southern terminus of the Ontario Sault line, by the Northern Railway, but an independent connection is probable, and it can be effected by extending either the Midland towards the north or the Sault line towards the south. The Ontario Sault line is now located from Gravenhurst to Sault Ste. Marie by way of Contin's Island in French River. After crossing that stream it skirts the shore of the Georgian Bay and St. Mary's River till it reaches the Sault Ste. Marie, which it will cross by an international bridge to connect with the eastern extension of the Northern Pacific. The Northern Pacific proper commences at Montreal River, the boundary line between Michigan and Wisconsin, and runs to the Pacific Ocean. From Casselton, a few miles west of Red River, a branch runs northerly towards the Canadian frontier, and by means of this branch it is expected that connection will yet be made with the Manitoba South Western. The latter line is projected from Winnipeg in a south westerly direction towards the Souris district. The first fifty miles are finished and the remainder of the line, which will be over 300 miles long, is under contract. For a considerable part of its entire length it runs almost parallel to the frontier and within twenty miles of the latter, but the point from which the southern spur to connect with the Northern Pacific is to be thrown out has not yet been announced. The following table of distances by this route will give some idea of the merits of the scheme in comparison with other transcontinental routes :—

GRAND TRUNK.—Montreal to Belleville		220	miles.
MIDLAND	Belleville to Peterborough	66	"
	Peterborough to Lindsay by way of Omemee	23	"
	Lindsay to Orillia	43	"
	Orillia to Gravenhurst	28	"
ONTARIO SAULT.—Gravenhurst to Sault Ste. Marie		340	"
NORTHERN PACIFIC.	Sault Ste. Marie to Superior City	350	"
	Superior City to Thompson Junction	25	"
	Thompson Junction to Fargo	230	"
	Fargo to Casselton	20	"
	Casselton to the Canadian frontier, say	130	"
MANITOBA SOUTH WESTERN.	Winnipeg to the same point, say	145	"
	Montreal to Winnipeg	1620	"

NEW DISTRICTS IN THE NORTH-WEST.

The Dominion Government have, by Order-in-Council, divided the North-west Territory into four districts for certain purposes of administration. These, with their boundaries and areas, are as follows :—

1. ASSINIBOIA, which is bounded on the south by the 49th parallel; on the east by the western boundary of Manitoba ; on the north by the ninth correction line,* near the 52nd parallel ; and on the west by a line dividing the 10th and 11th ranges of townships, numbered from the fourth initial meridian.* It contains about 95,000 square miles and includes the Qu'Appelle, Souris, and part of the South Saskatchewan rivers, Fort Pelly, Fort Ellice, and the Touchwood Hills.

* In the Dominion system of land surveys.

2. SASKATCHEWAN, which is bounded on the south by Assiniboia, on the east by Lake Winnipeg and Nelson River ; on the north by the 18th correction line, near the 55th parallel ; and on the west by a continuation northward of the western boundary of Assiniboia. It contains 114,000 square miles and includes Carleton, Battleford, and Prince Albert settlements.

3. ALBERTA, which is bounded on the south by the 49th parallel ; on the east by Assiniboia and Saskatchewan ; on the west by British Columbia ; and on the north by the 18th correction line. It contains about 100,000 square miles, and includes the Battle, Bow, and Belly river countries.

4. ATHABASKA, which is bounded on the south by Alberta ; on the west by British Columbia ; on the east by a continuation northward of the western boundary of Assiniboia and Saskatchewan until that intersects Athabaska River, then by that river and Athabaska Lake and Slave River to the 32nd correction line, near the 60th parallel ; on the north by the 32nd correction line. It contains 122,000 square miles, and includes what is known as the Peace River country.*

MISCELLANEOUS.

The British North America Act provides for a revision of the scale of representation of the various Provinces of Canada in the House of Commons of the Dominion Parliament after each decennial census. The unit of representation is fixed by giving sixty-five members to Quebec, irrespective of population, and then allotting to each of the other Provinces the number of members it is entitled to on a comparison of its population with that of Quebec. The census taken last year showed that Ontario was entitled to four members in addition to those she already had, and effect has been given to this arrangement by Act of Parliament. In view of the rapid increase of her population an additional member has been given to Manitoba, and for some time to come, therefore, the membership of the House of Commons will be 211, made up as follows : Ontario, 92 ; Quebec, 65 ; Nova Scotia, 21 ; New Brunswick, 16 ; Prince Edward Island, 6 ; British Columbia, 6 ; and Manitoba, 5.

The Dominion Parliament has voted a subsidy of $150,000 a year for twenty-five years in order to secure the construction of a ship railway across the Isthmus of Chignecto from Baie Verte to the Bay of Fundy—a distance of seventeen miles. The project of connecting the Gulf of St. Lawrence with the Bay of Fundy is an old one but no Canadian Parliament has ever approved of undertaking the work, and the ship railway project, the chief promoter of which is Mr. H. G. C. Ketchum, has been offered as a cheaper substitute. The Bay of Fundy terminus is fixed at the mouth of the La Planche River, and the Baie Verte terminus at Tignish Head. If vessels can be carried from the Gulf of St. Lawrence to the Bay of Fundy by such a railway the length of the ocean voyage from Shediac and points further north to St. John, N.B., will be reduced by about 500 miles. It is estimated that the railway and the necessary docks and other works will cost nearly four and a half millions. The annual subsidy just voted by Parliament is equivalent to a capital sum of less than two and a half.

* The boundaries of these districts can be traced on the ordinary school maps of the Dominion with sufficient accuracy for all practical purposes. Beginning at the 49th parallel, at a point midway between the two points where it is crossed by the Souris River, draw a line due north o a point in the latitude of Fort a la Corne, and from this latter point draw a line due east across Lake Winnipeg ; these lines will be the new western and northern boundaries of Manitoba. From the point where the northern boundary of Manitoba strikes the western shore of Lake Winnipeg draw a line northward along the Lake and down Nelson River to a point slightly south of the 55th parallel, and from this latter point draw a line due west to the 120th meridian and north along that meridian to a point near the 60th parallel of latitude. Beginning again at the 49th parallel slightly west of the 110th meridian, draw a line due north till it strikes Athabaska River ; from the point of intersection continue it along the west shore of Athabaska Lake and Slave River to a point just south of the 60th parallel ; and from this point draw a line due west to the one previously indicated on the 120th meridian. Finally through a point slightly north of Fort Pelly draw a line due west from the Manitoba boundary to the line just west of the 110th meridian.

Mathematical Department.

UNIVERSITY OF TORONTO.

MATRICULATION—1881.

ARITHMETIC AND ALGEBRA.

Examiner—ALFRED BAKER, B.A.

1. Define the terms "abstract" and "concrete" as applied to numbers.

Is $6\times3=18$ a correct solution of the question: What will be the cost of six postage stamps at three cents each?

Book-work. Yes, if we are careful to understand 3 as an abstract and not as a concrete number. Multiplication is merely a short way of doing a peculiar kind of addition in which the addends are all equal. The multiplier is the number which shows how often this addend is repeated, and cannot therefore stand for anything but the *number of times*. It cannot, for instance, be three cents. But $6\times3=18$ may be explained thus:—If the price were one cent each, the cost would be $1\times6=6$ cents, but as the price is three times greater than one cent, the cost is 6 cents $\times3=18$ cents, where 3 is a purely abstract number.

2. Define the numerator and denominator of a fraction, and from your definition prove $\frac{3}{4}\div5=\frac{3}{20}$.

When a unit is divided into equal parts there are two things to be considered, viz: (1) The NUMBER of equal parts, (2) The SIZE of these equal parts. The numerator is the number used to express the former, and the denominator the latter of these two things.

$\frac{3}{4}\div5=$ quotient. $\therefore$ $\frac{3}{4}=5$ times quotient. $\therefore$ $\frac{3}{4}\times4=20$ times quotient. Now to multiply 3 fourths by 4, take the same number of parts, but increase the size of each part by 4 times; *i.e.* instead of 3 fourths take 3 units. So then we get $3=20$ times quotient, or quotient $=\frac{1}{20}$ of $3=\frac{3}{20}$ of $1=\frac{3}{20}$.

3. Prove the rule for pointing in the extraction of the cube root of a number.

There is a metal cubical box of 96 feet surface and $1\frac{1}{2}$ feet thickness; also three solid cubes of another kind of metal whose surfaces are as the numbers 1, 4 and 9, and whose combined weight equals that of the box. Find the lengths of the edges of the cubes, the weight of the latter metal being to an equal bulk of the former as 3:4.

Book-work.

Surface of one face of cubical box $=16$ $\therefore$ external edge $=4$, internal edge $=\frac{5}{2}$.

Solidity of box $=4^3-(\frac{5}{2})^3=\frac{387}{8}=\frac{387}{8}\times\frac{4}{3}=\frac{129}{2}$ cub. ft. of the second kind of metal.

Now in cubes the sides are as 1:2:3, and their solidities are say x^3, $8x^3$, $27x^3$, *i.e.* their mass $=36x^3$, and $=\frac{129}{2}$ cub. ft.

$\therefore x=\sqrt[3]{\frac{129}{72}}=\frac{1}{6}\sqrt[3]{387}=1\cdot21456$; and the sides are

1·21456, 2·42912 and 3·64368.

4. \$500.00 is offered by a Building Society to be repaid in two annual instalments of \$285·00 each, so that the debt is liquidated at the end of two years from the present. Find the Society's rate of interest.

We have $285\{1+(1+r)\}=500(1+r)^2$

i.e. $57\,(2+r)=100(1+r)^2$

or $100r^2+143r-14=0$

$$\therefore r=\tfrac{1}{200}\{-143\pm\sqrt{(143^2+400\times14)}\}$$

$$\therefore \text{Rate }\%=\tfrac{1}{2}(-143\pm161.4)=9.2.$$

The lower sign is inapplicable to the problem.

5. A bank wishes to realize 4 per cent. interest on its discounting operations. Form a table of the rates at which it must discount notes payable in 30, 60 and 90 days respectively.

Omitting days of grace, as included in given times, and taking 360 days—year, after the manner of banks, the times are $\frac{1}{12}$, $\frac{1}{6}$ and $\frac{1}{4}$ of a year respectively. And the interest of \$1 for these times at 4% is $\frac{1}{300}$, $\frac{2}{300}$, and $\frac{3}{300}$ respectively; and the amounts $\frac{301}{300}$, $\frac{302}{300}$, and $\frac{303}{300}$. Hence the P.W. in each case is $\frac{300}{301}$, $\frac{300}{302}$, and $\frac{300}{303}$ of the face of the note.

The discounts are therefore

$\frac{1}{301}$ for 30 days, $\frac{1}{302}$ for 60 days, $\frac{1}{303}$ for 90 days.

6. State the advantages arising from the employment of Bills of Exchange. Define "Par of Exchange" and "Course of Exchange"; mention any causes that influence the latter.

Book-work. In answer to the last part, we may mention a high protective tariff. This will increase the cost of all imports into the protected country, and thus increase the demand for bills and raise the rate of exchange in the protected country.

7. Prove the following:—

The difference between any common number of three digits and a number consisting of the same three digits in reversed order, is divisible by nine, eleven, and the difference of the extreme digits.

Every number of four places, in which two like significant figures have two cyphers between them is divisible by seven, eleven and thirteen.

Let a, b, c be the digits

(1). $\therefore N_1=100a+10b+c$

$N_2=100c+10b+a$

difference $=100(a\sim c)-(a\sim c)$

$=99(a\sim c)$, hence the proposition.

(2). Let a be the digit at the right and left of the given number,

$\therefore$ Number $=1000a+a=1001a=7\times11\times13a$.

8. Extract the square root of

$\frac{1}{4}x-\frac{2}{3}x^{\frac{1}{2}}+\frac{25}{36}-\frac{1}{3}x^{-\frac{1}{2}}+\frac{1}{16}x^{-1}$

If this is a perfect square it consists wholly of two sorts of terms viz., square terms, like a^2, b^2 &c., and double products, like $2ab$, $2ac$ &c. The negative terms cannot be squares; $\frac{1}{2}x^{\frac{1}{2}}$ and $\frac{1}{4}x^{-\frac{1}{2}}$ are the square roots of the extreme terms, twice their product is $\frac{1}{4}$, subtracting this from $\frac{25}{36}$ we have $\frac{16}{36}$ the other square term. Having regard to the signs of the two remaining terms we see that the square root is $\frac{1}{2}x^{\frac{1}{2}}-\frac{2}{3}-\frac{1}{4}x^{-\frac{1}{2}}$.

9. If $\frac{a}{b}=\frac{c}{d}=\frac{e}{f}=\cdots\cdots$, then

$$\frac{a^n+c^n+e^n+\ldots\ldots}{b^n+d^n+f^n+\ldots\ldots}=\frac{(a-c+e-\ldots\ldots)^n}{(b-d+f-\ldots\ldots)^n}.$$

State the general theorem of which this is a particular case:—

(1) Let $a=bx$, $c=dx$, &c.

$\therefore a-c+e$ &c. $=x(b-d+f-\ldots)$

$$\therefore x^n=\left(\frac{a-c+e-}{b-d+f-}\right)^n \quad \text{(A)}$$

Also $a^n=b^nx^n$, $c^n=d^nx^n$, &c.

$$\therefore x^n=\frac{a^n+c^n+e^n+\ldots\ldots}{b^n+d^n+f^n}=\text{(A)}$$

(2) If $\frac{a}{b}=\frac{c}{d}$ then any fraction whatever formed by combining a and b or any of their powers, is equal to a similar and similarly formed fraction from the powers of c and d.

10. Give the different methods that may be employed in the solution of simultaneous equations.

Solve $\left\{\begin{array}{l} ax+by=c \\ a_1x+b_1y=c_1 \end{array}\right\}$

Interpret your results when (1) $\frac{a}{a_1}=\frac{b}{b_1}$; (2) $\frac{a}{a_1}=\frac{b}{b_1}=\frac{c}{c_1}$

The methods in common use are (1) Method of comparison. *i.e.* finding the value of x in each equation and putting these values equal. (2) Substitution of the value of x in one equation, in the remaining equations. (3) Method of Indeterminate Multipliers. (4) Cross-Multiplication.

Multiply 2nd. equation by m and add it to 1st.

$\therefore x(a+ma_1)+y(b+mb_1)=c+mc_1$ (A)

Now give m such a value as shall cause the coefficient of one of the unknowns to vanish, *e.g.* put $a+ma_1=0$, *i.e.* $m=-\frac{a}{a_1}$. Substitute this value of m in (A) and we get $y=\frac{a_1c_1-ac_1}{a_1b-ab_1}$. Similarly by putting $b+mb_1=0$, we get $x=\frac{b_1c-bc_1}{a_1b-ab_1}$

(1) If $\frac{a}{a_1}=\frac{b}{b_1}$ then $a_1b-ab_1=0$ and $x=y=\infty$.

The fact is the equations are contradictory under this condition. For if $a=ka_1$ and $b=kb_1$, we get on substituting these values in the first equations $a_1x+b_1y=\frac{c}{m}=c_1$, *i.e.* the same quantity equal to two different quantities.

(2) If $\frac{a}{a_1}=\frac{b}{b_1}=\frac{c}{c_1}$, then $a_1b-ab_1=a_1c-ac_1=b_1c-bc_1=0$

$\therefore x=y=\frac{0}{0}$ which is the symbol of indetermination; x and y are indeterminate, and one equation is in reality a multiple of the other, so that in fact we have only one equation between two unknowns. For let $a=ka_1$, $b=kb_1$, $c=kc_1$. Substitute these values in the first equation and it becomes $k(a_1x+b_1y)=kc_1$, a multiple of the second equation.

11. Solve $x^6+4x^5+7x^4+9x^3+7x^2+4x+1=0$

Arrange $(x^3+2x^2+2x+1)^2-x^2(x^2+x+1)=0$

i.e. $(x+1)^2(x^2+x+1)^2-x^2(x^2+x+1)=0$

$\therefore x^2+x+1=0$ or $x=\frac{1}{2}(-1\pm\sqrt{-3})$

$\therefore (x+1)^2(x^2+x+1)-x^2=0$

i.e. $x^4+3x^3+3x^2+3x+1=0$

or $x^4+3x^3+\frac{17}{4}x^2+3x+1=\frac{5}{4}x^2$.

$\therefore x^2+\frac{3}{2}x+1=\pm\frac{x}{2}\sqrt{5}$

or $2x^2+x(3\mp\sqrt{5})+2=0$

$\therefore x=\frac{1}{4}\{-3\pm\sqrt{5}\pm\sqrt{(-2\mp6\sqrt{5})}\}$

which are the other four roots.

12. If m and n are the roots of $x^2+px+q=0$, then p and q are the roots of the equation

$x^2+(m+n)x=mn(x+m+n)$.

Find the quadratic equation which, when reduced to the standard form, has one root for co-efficient of x and another for third term.

(1) We have $m+n=-p$, and $mn=q$. Substitute these values in the second equation and

$x^2-px=q(x-p)$, or

$x^2-(p+q)x+pq=0$. From which by inspection it is plain that p and q are the roots.

(2) Let α and β be the roots, so that the equation is

$$\alpha x^2+\alpha x+\beta=0$$

Then $\alpha+\beta=-\alpha$, and $\alpha\beta=\beta$, $\therefore \alpha=1$, $\beta=-2$;

and required equation is $(x-1)(x+2)=0$

i.e. $x^2+x-2=0$

13. When we have an expression equated to zero, when is it allowable to strike out a factor and still maintain the equation?

If $a^3+a^2b+ab^2+b^3=0$, then $a+b=0$.

(1) If an equation can be separated into factors, functions of x, the roots, obtained by equating each of these factors to zero, will be roots of the original equation. But if any factor does not involve the variable, x, or if it is necessarily a positive quantity, it will not be allowable to equate this factor to zero.

(2) Expression $=(a+b)(a^2+b^2)=0$

Now, either one of the factors, or both the factors must $=0$, since their product $=0$. But a^2+b^2 is not $=0$ under any circumstances unless $a=0$ and $b=0$; for, being squares, a^2 and b^2 are both positive and $\therefore a^2+b^2>0$, unless each is separately $=0$. In this case therefore we cannot infer $a^2+b^2=0$, except under the conditions $a=0$, $b=0$.

14. For all possible values of x the quantity

$\frac{x^2+2x+3}{x^2+x+1}$ lies between 0 and 4.

Put given fraction $=k$, clear of fractions and arrange in powers of x, and we have

$x^2(1-k)+x(2-k)+(3-k)=0$

Now, in order that x may be possible we must have

$(2-k)^2$ not less than $4(1-k)(3-k)$.

i.e. $3k^2-12k+8$ not >0

Now when $k=4$, left hand member $=8$

and when $k=0$, " " " $=8$ and for all positive values above 4, and all negative values below 0 the expression >8, and it is not <0 for any values except those <4 and >0.

$\therefore k$ lies between 0 and 4 when x is a possible quantity.

15. Show how to find the sum of a geometric series.

If a circle be inscribed in a square, a square in that circle, a circle in that square, and so on *ad infinitum*, show that the area of the original square is equal to the sum of the areas of all the rest; and that the sum of the perimeters of the first two squares is equal to the sum of the perimeters of all the rest.

Let $s=$ side of original square, then, by Euclid I. 47., the series of sides is $s, \frac{s}{\sqrt{2}}, \frac{s}{2}$, &c. *ad infinitum*;

and the areas of the squares form the series

$$s^2, \frac{s^2}{2}, \frac{s^2}{4}, \text{ \&c. } ad\ infinitum.$$

Now sum of areas of all squares but first

$=\left(\frac{s^2}{2}+\frac{s^2}{4}+\frac{s^2}{8}\text{ \&c. } ad\ infinitum\right)=s^2=$ area of first square.

Similarly, sum of all perimeters except first two

$=4\left(\frac{s}{2}+\frac{s}{2\sqrt{2}}+\frac{s}{4}+\text{ \&c. } ad\ infinitum\right)$

$=4s\left(1+\frac{1}{\sqrt{2}}\right)=4s+\frac{4s}{\sqrt{2}}$

$=$ perimeter of 1st. + perimeter of 2nd. square.

Special Articles.

THE TEACHER'S INFLUENCE.

BY G. H. BURNETT, RICHIBUCTO, N. B.

Every mind, in a greater or less degree, influences or is influenced by other minds. The mingling of individuals together and the different relations which ensue on this account must put those of greater strength in places of superiority; the weaker give way to the stronger. By personal contact with one another the opinions, wishes, or sentiments of one person affect others in such a way as to have a bearing on their lives and conduct. A single individual may possess in a remarkable degree this power of influencing others, which is mainly inherent but may to a certain extent be acquired. It is known under various names; by some it is called "will-power;" by others "magnetic influence;" by others "force of character." By whatever name it is called it is always *power*.

Instances can be recalled by almost any person who is at all observant of human nature. An incident which came under the writer's notice well illustrates this point. In a small town a religious meeting conducted by young men on Sunday evenings was frequently interrupted by a number of boys, who took a special delight in whistling, groaning, and stamping during the service. This always occurred when a certain gentleman was absent. If he was present no sooner would the noise begin than he would rise from his place, walk down and seat himself in the very midst of the boys. He would never speak to them a single word but his presence had such power that they remained perfectly quiet. It seemed as if they were seized by a magic spell and the greatest confusion was turned into stillness. Probably not another individual in the meeting could have done the same thing.

Now what was the secret of this man's power? It was not his physical strength, for others apparently as muscular as himself would have been hooted at. It was not his personal appearance, for there was nothing extraordinary in it. It was that indefinable something which certain persons possess and which constrains us whenever we are near them to acknowledge them as our superiors. The teacher above all others should possess this power. Many teachers fail on this very point. There is nothing natural to them which commands the respect of others. They cannot gain and hold the respect of pupils and soon leave their profession in disgust. They may maintain order by a forced submission solely on account of their physical strength but they do not influence the lives of those entrusted to their charge.

We meet some persons and mingle with them it may be for years, yet they never by their words or actions influence us in the slightest degree; with others again our contact may be only in the form of a conversation of a few hours' duration, yet they have given our thoughts such an impetus that we remember them for years. Our relations with others may tend to elevate our thoughts and feelings, to lift us, as it were, to a higher plane; or they may tend to drag us down, to degrade and pollute us. They may fill us with longings for the true and the good, the ideal of beauty; or they may lower us in the depths of despair and destroy in us every feeling of strong endeavour.

It is mainly by the powers of mind and intellect that one person controls and sways the minds of others. That a teacher does, by his personal force, influence his pupils is granted by all. Long after his voice is silent his opinions will colour the lives of those with whom he may have mingled. They in their turn will influence others, so who can estimate the power of a strong-willed man? What is communicated thus unconsciously will remain long after the knowledge gained by books is lost. Some maintain that any one will do for a teacher as long as certain facts are remembered from books; that the teacher is nothing, the knowledge everything. How much that is learned in childhood is entirely forgotten in adult life! But that which moulds our destinies and develops our character is gained chiefly by our contact with the minds which influence us.

SCHOOL CALISTHENICS AND GYMNASTICS.

As a matter of theory all teachers readily admit the necessity of allowing physical education to have a place in a good school system, but all do not as a matter of practice pay systematic attention to it as a part of school work. The training of pupils in the regular and beautiful exercises comprehended under some good system of gymnastics and calisthenics is really the only way in which physical education can be efficiently conducted, and it would be a good thing for the youth of this province of both sexes if the excellent example set by the High School authorities of Chatham were more generally followed. They have engaged the services of a thoroughly scientific and ingenious master, Mr. E. B. Houghton, himself an old pupil of Upper Canada College; and if some of those who are responsible for the management of the schools would pay a visit to Chatham and see for themselves the results he has achieved, there is little doubt that his services would be in demand in at least some of the neighboring towns.

The gymnasium building was erected and the appliances were purchased with money voluntarily subscribed by friends of the school, the total cost being $450. This sum sufficed to put up a building 35ft. by 50ft., well furnished with bars, trapeze, ladders, ropes, poles, clubs, wooden rifles, single-sticks, foils, masks &c., &c Regular class instruction is given for at least two hours a week to each form, and the pupils of both sexes attain to such proficiency that the annual exhibition they give to the citizens of Chatham is by far the most popular public entertainment of the season. The funds raised by these exhibitions is utilized in keeping up the gymnasium and making additions to the school library.

Only those who have seen what can be accomplished by an enthusiastic and gentlemanly teacher of physical exercises with a class of pupils, are in a position to estimate calisthenics and gymnastics at their true value either æsthetic or sanitary, but both teachers and school boards may depend upon it that they are losing opportunities of conferring unspeakable benefits on the rising generation when they fail to give these exercises a place on their school programmes.

CORNELL UNIVERSITY.

The Annual Register of the Cornell University supplies interesting information concerning that institution. The history of the University is a somewhat unique one. The institution owes its existence to the bounty of the United States and of Ezra Cornell, an eccentric, but wealthy and philanthropic citizen of the state of New York. In the year 1862, the Congress of the United States passed an Act granting certain public lands to all States which should "provide at least one College where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." The amount of land thus appropriated consisted of thirty thousand acres for each senator and representative which each state had in the National Congress. The share thus accruing to the state of New York was no less than nine hundred and ninety thousand acres.

In 1865 the legislature of the state of New York incorporated "The Cornell University" appropriating to it the income arising from the sale of the land thus granted. The chief conditions attached to this munificent gift were that Mr. Cornell should endow the University with a minimum fund of five hundred thousand dollars, that the University should provide approved instruction in agriculture, mechanical arts, and military tactics, and also receive annually one student from each Assembly District in the state, to whom instruction should be given free of charge. Mr. Cornell more than fulfilled the condition imposed on him by adding to the required endowment a splendid farm with the necessary appurtenances. As there are one hundred and twenty-eight Assembly Districts in the state, the free scholarships if all filled up would amount to five hundred and twelve.

The University was opened in October 1868. The faculty consisting of professors and assistant-professors, is aided by non-resident professors and lecturers. Among the latter are found in the Register for 1881-2 the distinguished names of Goldwin Smith (English Constitutional History), Edward Augustus Freeman (General European History), Dr. Adams of the University of Michigan, and others almost equally noted.

The University being established by a government recognizing no distinction of religious belief, seeks neither to promote any creed nor to exclude any. By the terms of its charter "persons of any religious denomination are equally eligible to all offices and appointments," and it is expressly ordered that "at no time shall a majority of the Board Trustees be of one religious sect, or of no religious sect." The University, however, possesses a chapel in which religious services are held and discourses delivered by representative clergymen of the various Christian denominations. The Register publishes the list of clergymen appointed, or requested, to officiate during the current year. The selection seems to have been made on broad principles, almost all shades of religious opinion being represented. The Right Rev. Bishop Doane of Albany and James Freeman Clarke of Boston, may be taken as typical extremes. The Canadian pulpit is worthily represented by Principal Grant of Queen's.

The President of the University from the beginning has been Andrew D. White, LL.D., one of the most distinguished Alumni of Yale College. Dr. White takes a lively interest in politics as well as in Education. For several years—while on leave of absence from the University—he represented his country as United States Minister at the imperial Court of Berlin. The Register enrols the names of 361 undergraduates.

PHYSICAL GEOGRAPHY.

BY G. R. CRUICKSHANK, M.A., SCIENCE MASTER IN CHATHAM HIGH SCHOOL.

(From an address delivered before the Chatham District Teachers' Association.)

In no branch of study should a youth desiring a liberal education be more thoroughly drilled than in geography. In conversation, in reading the newspapers, at every turn of life he is called upon to make use of his store of geographical knowledge. That Yankee who imagined Canada to be about the same size as Pennsylvania, seemed to be ridiculously ignorant; that Englishman impaired the prestige of the London *Times* who said that Montreal was connected with Detroit by the Victoria tubular bridge. The treasure of geographical facts is an unfailing source of gratification to its possessor, and their judicious use in conversation will stamp him among his fellows as a well read man. But do we not devote too much attention to the position of places? Are we not limiting geography too much to one branch of it, topography?

The object of education is to train the faculties so that the best use may be made of them—to teach the mind to think intelligently and to form correct conclusions. Education should not only improve reason and judgment but also store up in the mind valuable facts—food for thought. How far does geography work out these results? Are these numerous details of foreign lands desirable in a liberal education? Do our well read men, our shining lights in science and letters, know them? I am not giving you my own opinion only when I contend that fully one-half of our University graduates would be inevitably plucked at the intermediate in geography. Why are they content to remain in such gross ignorance? Why do they not take their attention from letters and learn to sketch the coast line from Copenhagen to Lisbon; to name the chief towns on the rivers which flow from near the St. Gothard Pass? Such questions as this do not train the reason, nor do they cultivate good judgment. They exercise the memory; they give a false training and cram it with details intended to be forgotten.

And yet our pupils are expected to trace the outlines of foreign coasts, to remember long lists of towns on far off rivers, while they would not be considered at all ignorant if they knew almost nothing of the air they breathe, or of the ground on which they walk. Of the wind which fans them they know not "whence it cometh or whither it goeth." A friend, who had been a teacher, on being asked the position of an American city, expressed surprise at forgetting it, remarking that a few years ago he knew every important town and stream in every state in the Union. On being asked if he was not sorry that he had forgotten, he replied that he was not sure whether he was or not. "What did you learn it for then?" "To pass the intermediate examination," was the reply. Such is "cram."

A good general knowledge then of places, a particular one of home and of foreign lands attracting public attention by war or notable events, and a sketch of mathematical and physical geography would realize more nearly the object of study. A youth leaves school to settle on the farm; most of the facts he has acquired are forgotten never to be recalled; but the stars, the wind, the rain, the rocks—will day after day suggest thoughts to his mind, keep him thinking, and keep his mind from becoming a cultivated waste. His geography would then be to him a pleasure in solitude, an ornament in society, a benefit always.

[The remainder of Mr. Cruickshank's prelection, to which the above is merely the introduction, contained a sketch of the topics he would include under a course of physical geography, these topics being all arranged under the three heads: *(a)* Land, *(b)* Water, and *(c)* Air.—ED. JOURNAL.]

HOME LESSONS.

BY D. C. McHENRY, M.A.

(Read before the Northumberland Teachers' Association, and published by request of the Association.)

In order fairly to discuss this question, it will be necessary first to agree upon some basis as to the true relation of *the teacher* to *the parent*—*the school* to *the home.*

That this relation is a very intimate one will appear if we consider that, primarily, every parent is directly responsible for the education of his own children. He may undertake the work himself, not only before his children reach school age, but also during the entire course of their studies. Some parents prefer this method and adopt it. Our school law recognizes the right of parents thus to educate their children—a right which no one thinks of calling in question. In this case *home lessons* are the only lessons formally given or received.

If all parents were personally qualified thus to conduct the education of their children, and if they could devote to the work that amount of attention which is necessary there are at least some very good reasons why it might be generally adopted.

It has been found, however, that in most families this plan of home instruction cannot be carried out. For many reasons it is, as a rule, quite impracticable. Hence *the school*, and *the school-teacher.*

Again, the parent may bring the *teacher* to the *home*, and, under the parental roof his children may receive instruction. Or, as a matter of convenience, the children may be entrusted to the care of the teacher at a public school, for a certain number of hours a day.

Has the responsibility of the parent ceased, by reason of this transfer? Has it even very materially changed in its character?

Contrary to the prevalent notions of many of the parents, I think we must maintain that they are still directly responsible, in a great degree for the educational progress of their children; that the teacher is but the assistant of the parent; and that it is only in a limited sense that he can be said to stand *in loco parentis.*

The question as to whether there shall be home-lessons thus becomes one merely of convenience or expediency. For, if all that the child properly requires at his age can be obtained at school, there need be no school-work at home. If, however, the child cannot complete at school all that is reasonably required of him, a part of his work should be done at home.

The teacher must be held responsible for his share of the work of supervision and instruction; and the parent must be held responsible for that part of the work which naturally falls to *him* while the child is at home.

At this point such questions as the following naturally arise:

I. What is *the object* of home-lessons?
II. What should be *the nature* of home-lessons?
III. How should home-lessons *be assigned*?
IV. What are the *duties of parents* in relation to home lessons?
V. What *time* is required for home lessons, by the various grades of pupils?

I. I think the true object of giving home-lessons will be seen if we can first decide what we do when we are said *to educate a child.*

I assume that all present are prepared to accept the statement that the *art* of education consists in the *practical application of principles* gained by studying *child-nature*—the central principle being that *it is what the child does for himself and by himself that educates him.*

If this be true, no system of education can be accepted as correct which does not aim at securing such an exercise of natural powers as leads to their healthy development, and generally renders the pupil practically independent of the teacher's assistance. It must come to this if a child is to be *educated*. He *begins* at a point where he is entirely *dependent*. His advancement in true education is exactly in proportion to the progressive mastery he gains over his work, and the *self-reliance* thus developed.

What is learned at school merely lays the foundation. The pupil's subsequent life is spent in building upon this foundation, and that, too, without the aid of his teacher.

If he has *comprehended* the work of laying the foundation, especially if he has *participated* in the work, under skilful guidance, he will be able to proceed *independently* with the superstructure and his life will so far be a success.

If, on the other hand, the teacher has merely *instructed*, filled the mind with facts, made it easy for the pupil at every step of his course—the pupil will be a weakling; the "foundation" will be left without a superstructure—a monument at once of the teacher's indulgent self-sacrifice, and of his *folly* as an educator of youth.

Since, then, the pupil must ultimately be left without the immediate aid of his teacher, the natural inference is that he should be prepared for this period by doing a certain amount of home-work and this work should be increased as the pupil's powers are developed. In this way he is naturally led from a condition of entire dependence to a state of practical independence.

The object of home-lessons is not, therefore, for the mere purpose of preventing idleness; nor for the purpose of relieving the teacher of *his* due share of the work; not even to give parents something to do; certainly not to *punish pupils* for short-comings at school. Our aim should be to train the pupils to *self-exertion*; to give them the ability to depend upon their own efforts as students.

As a first result they will do better work in school. When it falls to their lot to leave school, they will have been prepared for manfully facing the stern realities of responsible life.

II. *The character* of home-lessons will be determined, of course, by *the object* we are aiming at. On this point I merely remark that home-work should be such as lies directly in the line of ordinary school-work, and should be of such a character that the pupil by a fair amount of application will be able to do it, and do it well—that, too, without the aid of others, either parents or schoolmates.

We have lately heard a great many complaints from parents and physicians against home-lessons. While I believe that many of the objections are frivolous and unreasonable, I am prepared to admit that in too many cases good ground for complaint is to be found in the following causes:

1. Home-lessons have been assigned to pupils *of too tender years*.
2. The *amount* of home-work assigned has been *too great*, in the case of pupils capable of taking home-lessons.
3. The *character* of the work assigned, and failure on the part of teachers properly to prepare pupils for doing home-work, prove to intelligent parents that we are not really aiming at the *true object* of home-lessons.

If complaints are based on either of these causes, they are well founded; and we will consult our own interests as teachers, as well as the interests of our pupils, if we look carefully into the *nature* of the work we are assigning and the *object* we have in view in assigning this work.

III. The character of the work will be further referred to in considering the next point, "*How should home-lessons be assigned by the teacher?*"

My first answer is—he should assign no work until he is satisfied that his pupils have been prepared to do it; that is, they should be in possession of all that is necessary to enable them fully to comprehend and faithfully perform what is required of them. Unless we carefully guard this point, our home-lessons will become a positive injury to the pupil, and a perfect torment to all concerned.

It is not enough that the lesson be one of importance; it must be relatively appropriate as home-work for the pupil in question. From this it would follow that home-work, especially in case of young pupils, should consist mainly of *reviews*, that is reviews and *exercises* on the work which has been taught during the day.

Even in the case of senior pupils the assignment of home-work must proceed, to a certain extent, on the same principle. There should first be lucid explanations and ample illustrations by the teacher.

This done, we shall have more satisfactory results, and fewer complaints from parents.

Every observant teacher knows that nothing tends to discourage pupils more than the imposition of unreasonable burdens; and every good teacher will admit that it is unreasonable to demand work of our pupils for which they have not been suitably prepared.

Neglect on our part in this particular first shows its effects in a long list of delinquents in home-work. Our first impluse is to regard it as neglect, and repeat the task—probably with something added. A second failure follows; but no awakening of our dull powers of comprehension—even though among the delinquents we find pupils whom we had hitherto considered bright and clever. The only conclusion we arrive at is that we have altogether over estimated their ability, and must give them a lower class. Possibly we may conclude that a flogging is about the best corrective, and punishment is inflicted with all the formal solemnity which is befitting the occasion. Of course this has its effect, though probably not the desired effect. Our work is yet undone, and our once bright, clever, amiable pupils now appear to be both *stupid* and *stubborn!* There are various ways in which bright and clever pupils may be made dull and even stupid. I know of no way more effectual than the one just described, in connection with home-lessons.

On a former occasion I ventured to express the opinion that many failures at examinations are directly traceable to the practice, on the part of some teachers, of allowing a few clever pupils to guide and control them in dealing with ordinary class work. I am only confirmed in my opinion, and now apply the remark to the assigning of home-lessons.

If our pupils have been classified, (and this is of prime importance) we may safely take as our guide, in class explanations and assigning home-work, not those who are always ready with an answer, but rather that portion of our class who fail to solve problems with rapidity and accuracy. That school inspector understood this principle who, on visiting a school, asked the teacher to show him his *poorest* pupils, that he might first examine *them*. If *classification* is at fault, of course it must be rectified. But this point settled, let us beware of overlooking the just claims of those who most need our help, to impose on whom the home-work of others would be not only a waste of labor but a positive cruelty.

The charge is frequently made against us that there is now comparatively little actual *teaching* done—that we have substituted therefor the *assigning of home-lessons* and the *hearing of recitations*. I am not prepared to say that this charge is wholly unfounded; though I trust that the evil is disappearing with the more general dissemination of correct views on the science and art of teaching. If, however, I were specially commissioned to test any school, or number of schools, on this point, I would look for evidence first in connection with home-lessons. If the assigning of lessons in mathematics, for example, has been preceded by suitable explanations of the principles involved, and accompanied with a few practical

ests by which the teacher might know that his remarks had been understood by all—I would naturally expect a faithful night's work, and a good account of it in the morning recitation. If, on the other hand, these preparatory explanations were not given, but new work hurriedly dealt out by the page or chapter as the classes were being dismissed, I would anticipate hours of weary work, faithful but fruitless toil, and a poor return in the morning on the part of the weaker but no less meritorious pupils.

In a word, no true teacher will assign home-work until by his teachings he has made the desired results reasonably attainable by his class. More than this, he will endeavor to appreciate the honest efforts of his pupils by carefully examining their home-work and giving credit where it is due. Failure in this respect is extremely discouraging, and will surely foster carelessness and even dishonesty in those who would otherwise be studious and self reliant.

IV. *Duties of parents in relation to home-lessons.* I would suggest that parents, first of all, come to a *distinct understanding* with the teacher as to the nature and amount of home-work required of their children. This mutual understanding can be arrived at by a visit to the school on the part of the parent or by a call on the part of the teacher. It may be kept prominently before both parents and children by our inserting in the monthly report the length of time the pupils should devote to home-work modified, of course, as this work increases.

I fear that from a want of intimacy to this extent, at least, many teachers are practically alienated from the families of their pupils.

The true relation of parents and teacher—working for a common object—is never realized while practical sympathy and mutual co-operation are wanting.

No teacher can properly teach a child until he first learns his disposition and general character. In order to this he must know something of his home-life.

Failing in this particular, he is in danger of treating all his pupils alike, by assuming that they are equally capable of doing the same work; that all are alike favorably situated at home for doing the work prescribed; and he accordingly holds all equally responsible.

Parents may co-operate (1) by setting apart certain hours, and, if practicable, a private room for home-study; (2) by faithfully adhering to this plan—never permitting trifles to interfere with established regulations; (3) by encouraging their children to surmount obstacles, without actually doing their work for them; (4) by keeping prominent the true object of home-work, showing their children that real success is measured rather by mental development than by rapidity in learning lessons; (5) by carefully guarding the teacher's reputation; (6) by occasionally visiting the school. With such co-operation the school would indeed become the friend of the home, and the home the friend of the school.

VI. *The time required for home-lessons by the various grades of pupils.* On this point I shall merely give the result of some inquiries as to the practice which obtains in certain villages, towns, and cities.

In *Brighton Public Schools*, I understand that—

In the *first form* no home-work is assigned.
" *second* " about 1 hour's work.
" *third* " about 1½ " "
" *fourth* " about 2 " "

In *Cobourg Model School and Public Schools.*
first form, no home-work.
second " ½ hour's "
third " 1½ " "
fourth " 2 " "

Toronto Model School—
First form, no home-work, unless it be a question in addition at solicitation of pupils.
Second form, only *two* lessons—one in spelling and one in arithmetic or writing; *time* half an hour.
Third form, only *three* lessons—spelling and arithmetic, and grammar or geography; *time* ¾ hour.
Fourth form, usually *three* lessons; time 1 to 1½ hours depending on the ability and application of pupils.
Fifth form, *three* or *four* lessons; *time* about 1½ hours.

Such subjects as grammar, geography, &c., are always taught at school, and the home-lessons are simply *reviews*. This is true of all subjects assigned, except spelling, until the higher divisions are reached.

City of Hamilton Public School—
First form, no home-work.
Second " ½ hour's "
Third " 1 " "
Fourth " 1 to 1½ "

To show how home-work increases with promotion, I give the *average* time devoted to home lessons by pupils of Cobourg Collegiate Institute.—

Primary Division, girls, 2¼ hrs.; boys, 3⅓ hrs.
Junior " " 2⅓ " " 3¼ "
Senior " " 4½ " " 5⅞ "
Upper Sch'l " average 6 hrs.
Average for the school, about 4½ hours.

In conclusion, permit me to suggest that we try to bring our schools and homes into a closer and more friendly relationship, in order that both parents and teachers may more efficiently discharge those duties which belong to them in the work of education.

Examination Questions.

STRATHROY HIGH SCHOOL MONTHLY EXAMINATIONS.

LITERATURE.—*Cowper's Task, Book III.*

I.

(*a*) Lines 48 —54.
(*b*) " 71 —74.
(*c*) " 567—569.
(*d*) " 687—688.
(*e*) " 261—262.

1. Quote the three lines that follow extract (*a*).
2. Point out and name all poetic figures in the several extracts.
3. Expand all metaphors.
4. Parse, *as* (*a*), *white* (*b*), *to own* (*b*).
5. Parse, *of mine* (*b*), and give reasons for your view.
6. Quote lines similar in language or sentiment to any in the extracts, and name the authors of the lines quoted.
7. Derive, 'nurse' (*a*), 'zoneless' (*a*), 'frail matrons' (*b*).
8. Discuss the appropriateness of the epithets, 'reeling' (*a*), 'fickle' (*a*), 'exotic' (*c*), 'dishevelled' (*e*)
9. Show the connections in the poem in which the last three extracts occur.
10. Show in what way any of those lines reflect Cowper's character.

II.

(*a*) Lines 173—176.
(*b*) " 249—251.
(*c*) " 757—759.
(*d*) " 803—810.

1. Point out all poetic figures in the extracts.

2. To what is the reference in extract (*a*). Give a quotation similar in language or sentiment.

3. 'Piety has found friends in the friends of science.' Refer to examples of this in the past and present. Explain the reference in 'Castalian dews.'

4. Explain fully the meaning of extract (*c*).

5. Paraphrase extract (*d*).

6. Parse, *but* (*a*), *proves* (*a*), *so* (*b*).

7. 'Surfeited,' 'lewd,' (*c*). Write notes on the meaning and derivation.

8. Give a sketch of Cowper's life at the time of his writing this poem, and show how his manner of life is reflected in the poem.

9. "If Cowper was not the founder of a new school of poetry, he was the pioneer of a new era."

Explain the meaning of this and discuss the statement fully.

10. Wordsworth speaks of the Task as combining the Philosophical Satire, the Didactic Poem and the Idyl. Discuss the appropriateness of this description.

GRAMMAR.

I.

1. Analyze

For *what* are men better than *sheep* or goats,
That nourish a blind life within the brain,
If, *knowing* God, they *lift* not hands in prayer,
Both for themselves and *those* who call them *friends*?

2. Parse all words in italics.

3. Is 'that' in second line preferable to 'who' or which? Give reasons for your answer.

4. Give the mood of all the verbs in the following sentences, with reasons;—

(*a*) If these boys were yours, what would you do with them?

(*b*) Had you been there you would have seen a strange sight.

(*c*) If my father and mother were not at home they were in London.

(*d*) If he lost his money he would never be happy again.

5. Correct or justify the grammar of the following sentences, with reasons;—

(*a*) I called on him and wished to have submitted my manu script to him.

(*b*) I had not the pleasure of hearing his sentiments when I wrote the letter.

(*c*) Having to pass an examination for admission, a few months preparation at a High School is strongly recommended.

(*d*) I had intended to come before I received your letter.

II.

1. Analyze.

(*a*) "So *live that* when thy *summons* comes *to join*
The innumerable caravan, which moves
To that mysterious realm *where* each *shall take*
His chamber in the silent halls of death,
Thou *go not like* the quarry slave at night,
Scourged to his dungeon."

(*b*) "All men think all men *mortal but* themselves."

(*c*) "Here rests his head upon the lap of earth.
"A youth to fortune and to fame unknown."

2. Parse all italicized words.

3. Correct, where necessary, giving reasons.

(*a*) I think I will return home next week.

(*b*) I expected to have been at home when you called.

(*c*) I never have nor never will forgive him.

(*d*) That is seldom or ever the case.

4. Define the terms 'tense,' 'person,' 'strong conjugation.' How many primary tenses are there? Why so many?

5. Explain the basis on which verbs are classified into strong and weak, and illustrate your answer by an example. Conjugate and classify *flow, clay, sit, set, loose, fly*.

6. What is an auxiliary verb? Explain the use of each of the auxiliary verbs? Give examples illustrating both the auxiliary and the notional use of those verbs.

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

CHAPTER II.

18. *An acid* is a body containing one or more atoms of hydrogen, which are capable of being displaced by a metal, either partially or entirely. The term was originally applied to substances soluble in water, having a distinctly sour taste and capable of turning vegetable blue into red. Blue litmus is the common test.

Bases are compounds which never become acids, but which will under all circumstances combine with acids and neutralise them either partially or entirely; the latter are called *Alkalies.*

Alkalies are generally soluble in water, have an acrid, nauseous taste, restore the blue color which has been turned red by acids, turn vegetable blues into green, and browns into yellow. Ammonia, potash, and soda are the common alkalies.

There are two classes of bases.

(1) *Oxides* of the metals, as Ag_2O.

(2) *Hydrates*, which are compounds of metals with hydroxyl (H_2O_2). To this class we must add ammonia (NH_3).

Salts are compounds formed from the union of an acid and a base. There are three classes of acids.

(1) Acids containing oxygen, and having names ending in —*ic* or —*ous*, as nitric acid, HNO_3.

(2) Acids containing sulphur, instead of oxygen. These prefix *sulph*—or *sulpho*—, as sulphocyanic acid (CN)HS, sulpho-carbonic acid, CH_2S_3, Some writers use the prefix *thio*—, from *theion* the Greek name for sulphur, as thiocyanic, thio carbonic, thiostannic acids.

(3) Acids formed by the union of hydrogen and another element. These prefix *hydr*—, or *hydro*—as hydrobromic acid HBr, hydrocyanic acid HCN, hydrochloric acid HCl.

The first class are called *oxiacids* and the third *hydracids.* When a portion of water is abstracted from any oxiacid the residue is called an *anhydride*, thus:—

Sulphuric acid —water=sulphuric anhydride.
H_2SO_4 $-H_2O = SO_3$
2 HNO_3 (nitric acid) $- H_2O = H_2O_5$ (nitric ,,)

Acids are merely salts of hydrogen, and the amount of hydrogen present determines the *basicity of the acid.* Thus nitric acid contains only one atom of displaceable hydrogen, hence it is *mono*-basic; sulphuric acid (H_2SO_4) is *di*-basic, and has two atoms of hydrogen; ortho-phosphoric acid, H_3PO_4, is *tri*-basic, etc.

Salts containing oxygen are of three classes:—

(1) *Normal salts* in which all the hydrogen of the acid is replaced by a metal, or by a group of elements that goes in and out of combination like an element. (N.B. A group like this is called a *radical* and its name generally ends in —*yl* as hydroxyl, HO).

Examples:

$KClO_3$, potassic chlorate from $HClO_3$.
$NaSO_4$, sodic sulphate " H_2SO_4
Ag NO_2, argentic nitrite " HNO_2, nitrous acid.
$(NH_4)_2SO_4$, ammonic sulphate from H_2SO_4

(2) *Acid salts* in which the hydrogen of the acid is partially replaced by a metal or a radical. Examples: carbonic acid, H_2CO_3 yields sodic hydric carbonate, $NaHCO_3$, with only one atom of hydrogen replaced. Sulphuric acid, H_2SO_4 yields $KHSO_4$, potassic hydric sulphate.

(3) *Basic salts* are derived from normal salts by the substitution of oxygen for an equivalent amount of the *radical.*

Common Acids.	Common Salts.
HNO_3, hydric nitrate.	KNO_3, Potassic nitrate.
HNO_2, " nitrite.	$AgNO_3$, Argentic "
H_2SO_4, " sulphate.	$CaSO_4$, Calcic sulphate.
H_2SO_3, " sulphite.	$PbSO_3$, plumbic sulphite.
$HClO_3$, " chlorate.	$KClO_3$ potassic chlorate.
$HClO_2$, " chlorite.	$NaClO_2$ sodic chlorite.
$HClO$, " hypochlorite.	$KClO$, potassic hypochlorite.
	$FeSO_4$, ferrous sulphate.
	Fe_2Cl_6 ferric chloride.

19. The following list gives the composition of a number of common substances. The student will do well to make himself thoroughly familiar with their chemical names and formulas. He should notice the class to which each belongs:—

COMMON NAME.	CHEMICAL NAME.	FORMULA.
Water	Hydric oxide	H_2O
Quick-lime	Calcic "	CaO
Oxide of Zinc	Zincic "	ZnO
Black oxide of copper	Cupric "	CuO
Red oxide of mercury or Red precipitate	Mercuric "	HgO
Oxide of silver	Argentic "	Ag_2O
Oxide of lead or Litharge	Plumbic "	PbO
Magnesia	Magnesic "	MgO
Potash	Potassic "	K_2O
Slaked lime	Calcic hydrate	CaH_2O_2
Caustic soda	Sodic "	$NaHO$
" potash	Potassic "	KHO
Carbonic acid Choke-damp, After-Damp	Carbonic anhydride, or " dioxide	CO_2
White sand, quartz, flint&c	Silica, or silicic "	SiO_2
Black oxide of manganese	Manganic "	MnO_2
Tin-stone	Stannic "	SnO_2
Red oxide of iron	Ferric oxide	Fe_2O_3
Alumina (clay)	Aluminic "	Al_2O_3
Loadstone or Black oxide of iron	Ferrous " and Ferric "	$FeOFe,_2O_3$ Fe_3O_4
Red lead	Red plumbic oxide	Pb_3O_4
Vitreous copper	Cuprous sulphide	Cu_2S
Galena	Plumbic "	PbS
Zinc Blende	Zinc "	ZnS
Common salt	Sodic chloride	$NaCl$
	Calcic "	$CaCl_2+6H_2O$
	Argentic "	$AgCl$
Muriatic or hydrochloric acid	Hydric "	HCl
Fluor-spar	Calcic fluoride	CaF
Bleaching powder chloride of lime	Calcic hypochlorite	$CaCl_2O$
Oil of vitriol, sulphuric acid	Hydric sulphate	H_2SO_4
White vitriol	Zinc "	$ZnSO_4+7H_2O$
Blue vitriol, blue stone	Cupric "	$CuSO_4+5H_2O$
Green vitriol	Ferrous "	$FeSO_4+7H_2O$
Plaster of paris, gypsum	Calcic "	$CaSO_4+2H_2O$
Heavy spar	Baric "	$BaSO_4$
Glauber's salts	Sodic "	$Na_2SO_4+10H_2O$
Epsom salts	Magnesic "	$MgSO_4+7H_2O$
Aquafortis, nitric acid	Hydric nitrate	HNO_3
Saltpetre, nitre	Potassic "	KNO_3
Chili saltpetre	Sodic "	$NaNO_3$
Lunar caustic or Nitrate of silver	Argentic "	$AgNO_3$
	Cupric "	$Cu(NO_3)_2+6H_2O$
Chalk, limestone, marble &c	Calcic carbonate	$CaCO_3$
Washing soda	Sodic "	$Na_2CO_3+10H_2O$
Potashes, pearlashes	Potassic "	K_2CO_3
White lead	Plumbic "	$PbCO_3$
Smelling salts	Ammonic "	$(NH_4)_3(CO_3)_2$
	Phosphoric anhydride	P_2O_5
	Tribasic phosphoric acid	H_3PO_4
Bone-earth, bone ash	Tricalcic phosphate	$Ca_3(PO_4)_2$
Vinegar, acetic acid	Hydric acetate	$C_2H_4O_2$
	Potassic acetate	$KC_2H_3O_2$
Sugar of lead	Plumbic "	$Pb(C_2H_3O_2)_2+3H_2O$
Verdigris	Cupric "	$Cu(C_2H_3O_2)_2+3H_2O$
	Zinc "	$Zn(C_2H_3O_2)_2+3H_2O$
	Chromic anhydride	CrO_3,(chromium, $Cr=52.5$)
Chromome acid	Hydric chromate	H_2CrO_4
Chromic yellow	Plumbic "	$PbCrO_4$
Chromate of potash	Potassic "	K_2CrO_4
Sugar	Sucrose	$C_{12}H_{22}O_{11}$
Alum	Aluminic potassic sulphate	$Al_2K_2(SO_4)_4+24H_2O$
Cast iron corresponds closely to		Fe_4C
Coal oil "		$C_{12}H_{24}$

Many of the metallic salts owe their crystalline character to a certain definite number of atoms of water which they hold in a state of chemical combination, and this is termed *water of crystallisation.* It determines the crystallographic form and often modifies the color of the crystal. It is held with varying tenacities. Some salts give up their water of crystallisation to the air at ordinary temperatures and fall to a powder *(efflorescence)*, as sodic carbonate. Others, as common alum, require considerable heat to drive off the water. This water is essential to the crystalline form but not to the chemical properties of the salt. It is chemically combined, as is proved by its strict obedience to the law of multiple proportions, but it is less powerfully combined with the other materials than the water in hydrates, as CaH_2O_2. The latter requires a comparatively high temperature to effect its expulsion and is called *water of constitution, constitutional water*, or water of *halhydration.* Often a salt of this kind when dried will again absorb water from the air and become a hydrate, (*deliquescence*).

NOTES ON HYGIENE.

BY J A. WISMER, PRINCIPAL OF PARKDALE PUBLIC SCHOOLS.

(Continued from last month.)

Let us next examine the ear. It consists of three distinct parts the outer ear or lobe, the middle ear or tympanum, and the inner ear or labyrinth. The lobe you can examine for yourself, consequently I need not describe it. It is so fashioned that it can with the greatest success receive sound and transmit it to the inner ear through the auditory canal. The tympanum or drum is a cavity behind a dense slanting fibrous membrane called the membrana tympani, behind which there is a tube leading to the pharynx or upper part of the throat, called the Eustachian tube. The labyrinth or internal ear consists of three parts, called the vestibule, the cochlea, and the semicircular canals. Sound is transmitted from the vestibule to the brain through the auditory nerve. The cochlea is shaped somewhat

like a common snail shell. The semicircular canals are six in number all opening into the chamber or vestibule of the inner ear. There are three curiously shaped little bones in the inner ear, namely, the malleolus or hammer, the incus or anvil, and the stapes or stirrup, all of which move when sound is transmitted. Very loud and unexpected sounds, as the discharge of a cannon close to the ear, are apt to rupture the membrana tympani and cause permanent deafness in one ear if not in both. Boiler-makers, engine-drivers and many machinists in time, become more or less deaf from the continuous strain on the ear made by loud sounds. Nothing should ever be allowed to enter the ear, or be put into it, with perhaps the single exception of a little warm sweet oil and a few drops of laudanum in severe cases of ear-ache which is exceedingly painful. If any foreign substance as a bean, pea, or an insect should accidentally get into the ear you had better call in the aid of a surgeon as quickly as possible. Good eyesight and good hearing are two of the greatest blessings conferred on man by his beneficent Creator; take great care, therefore, of both the eye and ear in youth, in order that they may serve you well, even to extreme old age.

We will consider next the hygiene of the bones and muscles, and then vary our course by some hints on bathing, swimming, common accidents, &c. which will no doubt prove more interesting, (especially to the boys).

The muscles and bones require activity or use to make them strong and healthy; labor improves and strengthens the muscles, while laziness or inaction weakens them. Great benefit may be derived from athletic exercises within certain limits, also from dumb-bells, club-swinging, and military drill. The bones of a young child contain very little lime or earthy matter and are comparatively weak. Those of old people, on the contrary, contain much more lime than animal matter, and are therefore more liable to break. A broken bone may be detected, generally, by the abnormal displacements of the muscles or soft parts surrounding it. A grating noise can also be heard when the broken ends are slightly moved against each other. If the fracture be one of the bones of the arm or leg, bind strips of cotton or a couple of pocket handkerchiefs around it after extension and straightening, then apply two splints made of shingles or whatever thin wood may be handy, and send for the nearest surgeon.

Everybody should remember to sit, stand, and walk erect. A perfectly upright carriage of the body is conducive to the beauty and symmetry of its parts. Children at school should sit erect during their various exercises; this should be especially remembered when writing or drawing. Improper positions at school induce round or stooped shoulders and often curvature of the spine. Extension motions or calisthenic exercises should form part of every school programme. Walking or horse-back riding are important aids to health. Every healthy young person ought to know how to ride a horse, and should be able to walk five or six miles without feeling any inconvenience.

Everybody should know how to swim. First get yourself accustomed to the water in shallow places by repeated bold dashes; if you go under a few times all the better. When you have thoroughly overcome the shrinking and nervousness occasioned by the contact of water with the less exposed portions of the body, you have taken the first important step in learning to swim. The confidence thus gained is half the battle. Then practise paddling with the hands and feet with the body thrown either backward or forward. Learning to swim on the back, as the boys say, is the easiest method if you have sufficient confidence. Never mind your ears, all you require is to have the nose above the surface, keep the hands and feet in motion under water, and you will not go down. Notice the movements of the legs made by that splendid swimmer, the frog, and practise them yourself. These are the leg motions, then throw the body forward and, always being careful to keep both hands and feet under water and in motion, practice will then enable you to master the art of swimming without difficulty. One writer says (and there is considerable truth in it) that if suddenly submerged, keep cool and perform the motions with the hands and feet of a person climbing up stairs on all-fours, and you will not sink even if unacquainted with the swimming art. This is worth remembering by those who cannot swim. In view of the disastrous accident to the steamer *Queen Victoria* at London and the enormous loss of life on that occasion, it would be wise for those who take holiday excursions by boat to provide themselves with a tight fitting cork jacket coming high up the neck. Persons should not bathe or swim while the stomach is engaged in the act of digestion, or, in other words, not for a couple of hours after meals. Boys after racing to the water on a hot day should wait until cooled off before plunging into rather cold water. There is not only danger of cramp, but the sudden lowering of the temperature of the body may induce serious disease of the internal organs if inclined to be weak. Race around as much as you like after a swim but not before it. The body should be briskly rubbed with a coarse towel after a bath. Before diving it would be well to plug the ears with cotton batting, as the water is not only uncomfortable to the middle ear, but also injurious. Opening the eyes under water is, to many, a somewhat difficult thing to do. It would be well to practise it however in clear water, as it may enable you to save a human life.

For the method of resuscitating a person apparently drowned, see the September number of the CANADA SCHOOL JOURNAL for 1881.

HINTS TO TEACHERS OF PRIMARY CLASSES.

BY S. P. ROBINS ESQ. INSPECTOR OF PUBLIC SCHOOLS, MONTREAL.

1. Remember that, inasmuch as you are left very much to the guidance of your own judgment in the management of your class it is especially necessary to use all your observant and inventive faculties for securing the best possible result of your labour.

2. That best possible result is the thorough preparation of each of your pupils to prosecute his studies and perform all other duties well hereafter. The first aim is not a high standard of attainment, but a good discipline of mind and manner, so far as it can be attained with each little pupil.

3. Because the habits of thought and action that are earliest formed are the most persistent and influential throughout life, and because the imitative faculties of a little child are especially active and his nature peculiarly impressible, yours is the most important work done in school. It is difficult work but, if well done, you deserve corresponding consideration and honour. If you do not get them now, yet, your heart and life being right in other respects, you will secure them hereafter.

4. As you are conducting, in common with other painstaking and successful teachers, a great experiment in the management of half-day classes with very little children, carefully observe whatever in your manner, or in the ingenious devices to which you will be led, makes for your success, practise it diligently, and tell of it to others.

DISCIPLINE.

There is no need of reference here to the mode in which the successful teacher acquires ascendency over each of her pupils by strength and consistency of character, by a loving heart, a kind manner, and a clear and vigorous understanding. All these things are presupposed in the successful teacher. When, as in my presence less than twelve months ago, a teacher says to a class "I will look at the slate of no child out of place," and then in less than a

minute does so, it is not surprising that her class despise her authority, and make little or no progress. One who can promise so lightly, and forget so readily is fit for no important trust; certainly, not for that of the teacher. But there are many things, little in themselves though important in their results on discipline, which are sometimes overlooked even by those who have all the essential elements of excellent teachers.

1. Consider well the disposition of a little child. He is active but undisciplined. He longs to know, takes great delight in learning,—he loves to do, takes great delight in putting his knowledge into practice. But then he has but little persistency and steadiness.

2. You must, therefore, when he is not at play, teach him constantly or keep him doing constantly, and this with rapid alterations from the employment of his mind to the employment of his body.

3. So you must never be without a definite plan of action that shall engage the attention of every child. A half minute's embarrassment of the teacher in the presence of the class will work ruin in its discipline for the time being, and a child with nothing definite to do at any time during the school session becomes forthwith a centre of disturbance.

4. You must not put too prolonged a strain on the feeble power of attention in pupils of the preparatory grade. Let your work be varied and your lessons short and lively. Let the teachers who will follow you in the school course have most of the trouble involved in securing long continued and concentrated attention.

5. Frequent change of rooms will much facilitate your work. In some schools visited there is not nearly enough of this. Your class should occupy two rooms during parts of every hour. This may compel you to change in the middle of a lesson, but you can so choose the lessons that the interruption will not be harmful.

6. Much aid to discipline is afforded by the drill of changing rooms by simple calisthenic exercises and by exercise songs. But this aid is secured only by the enforcement of prompt and exact obedience.

7. Hence the lightest tap of the bell should be followed by immediate and intense silence, not, however, permitted to continue long.

8. Hence also the first word of each command must be so chosen and given as to suggest invariably what is to follow, the next and finishing word of the command must be the signal for the prompt, universal, and therefore simultaneous execution of the command.

9. Hence also no second command should be given until the first has been universally and precisely obeyed.

10. Finally, the effect of each command must be minutely considered beforehand. For example, in a series of commands, those first given should be those that can be executed noiselessly, the whole series being terminated by that one which necessarily involves disturbance.

TEACHING.

1. You must yourself be accurate. The distinction between the well educated and the imperfectly educated is just here, that the one is, the other is not, automatically and minutely correct in recollection, in mode of thought, in manner of expression. I saw a teacher, printing on the black-board for the imitation of her class, make a small w thus, W. Do not teach anything that must be subsequently unlearned.

2. With little children, especially at the outset, much attention must be given to them individually. This, however, in many instances can be done so as to interest others not directly addressed, who may be appealed to to give the information that their companion requires.

3. The effect of every collective lesson is greatly increased when every child attends to the whole lesson. But this attention can be secured only by making each child feel that in all you say you have reference to him.

4. Hence recitations and other exercises must not be wholly, nor even principally, simultaneous. No more convincing evidence of idleness or of inexperience on the part of a teacher is needed than the general inability of a class to repeat individually, what in concert, or rather following the lead of one or two, they can in sing-song style deliver sinultaneously.

5. In questioning a class you should not give it to be understood whether you intend to have the answer from the whole class or from any particular pupil until after your question has been asked and a momentary pause for reflection and recollection has been allowed. After the pause you may say "John Brown" or "any one" and then expect an instant answer. Thus you prevent one or two bright pupils suggesting the answer to all the rest of the class, and you secure the attention of each to the work in hand.

6. Take care that each child gets a fair share of questioning. Sometimes the teacher has a few names that somehow spring first to the tongue, and their owners get the lion's share of attention. When the teacher is conscious of this let her make sure of each child occasionally by some such device as the following. Let the whole class stand, and, as questions are answered by individuals, let them sit. Thus proceed until every child is seated.

7. Holding up the hand to indicate the wish to reply to a question is open to great abuse. Forward children answer everything. Timid or indifferent children answer nothing. It is a good rule that the hand shall not be held up except when another pupil has made a mistake or when the teacher, in asking a question that she thinks a little too hard for the class generally, gives special permission to raise it.

8. Rising from the seat, running after the teacher, thrusting the hand into the teacher's face, snapping the fingers are highly improper acts, instances of each of which I have seen as importunate efforts to attract the teacher's attention. At times the teacher by standing so that she cannot see the whole class, is the direct cause of such rudeness.

9. It is impossible to carry on work with the active co-operation of the teacher in two classes at once. Having given one class an exercise on the slates, or one of some other kind, that has been properly explained, that is within their power, and the result of which can be subsequently examined by yourself, bend your undivided attention on the other class.

10. In the examination of slate work it is, as a rule, better that the children bring it to the teacher, than that the teacher go to examine it. Hence in every room pupils should be taught how, without marking time or marching noisily, to move in single file before the teacher showing work as they pass slowly, and then to return in order to their places, having completed the circuit of the room.

11. Home-work is not needed in preparatory classes. It will much conduce to good order, therefore, if books, slates, and pencils be always left in school under the care of the teacher.

12. The preparatory limit-table should be interpreted rather as a maximum than a minimum.

READING.

1. Use cards frequently for individual, as well as for simultaneous reading.

2. Do not confine yourself to the set order of words. Pick out words here and there; read backward as well as forward.

3. I had supposed the teaching of reading by spelling thus, emm ee me, e double gee egg, to be obsolete; really, I find it only obsolescent. If a word be analyzed at all, *for purposes of reading*, it should be by the powers and not by the names of the letters.

ARITHMETIC.

1. If you have not an abacus that stands on feet, ask for one.

2. Use the abacus yourself, but let the children also use it constantly.

3. Do not aim at going beyond the limit, 20.

4. Let every kind of relation among numbers be taken with each successive number; *i. e.*, do not teach addition first, and then subtraction, multiplication and division in succession, but teach all three operations, as mentally performed, simultaneously. Thus, that three and three are six, that three taken from six leaves three, that twice three are six, that three is the half of six, and that three is contained in six twice, are but different ways of regarding the same fact.

COMMON THINGS—OBJECT LESSONS—STORIES—SINGING.

1. See that you have, use yourself, and set the children to use scales and weights, a two-foot rule, a clock card, and a compass.

2. Object lessons must be very simple, but they ought to be more or less, on that account, carefully prepared. It is a painful thing to see a teacher standing before a class puzzled to know what to do or to say next.

3. Similarly a story should be prepared beforehand. Great interest will be added if the teacher simply illustrate her story by drawing on the black-board as it proceeds.

4. In questioning children on all subjects the aim should be to get connected answers of some length, but this can only be very slowly accomplished.

5. Teach children to sing distinctly but not too noisily. The muscial effect of a perpetual bawl is even worse than that of a perpetual whisper. It is no harm to have an occasional *f.f.f.* passage, but let us also occasionally have *p.p.p.*

MISCELLANEOUS.

1. Stand so that you can see all the children of the class, and so that each one of them can see, when necessary, what you do and how you do it. Sometimes it is well to overlook children from behind.

2. Be not noisy. Speak distinctly and quietly, so that children will listen to hear you, do not shout so that they must hear you whether they will or no. Even if a busy hum of work (pleasant to hear) fill the room, do not raise your voice too much; call attention by a light stroke of the bell before you speak, then speak in the midst of a profound silence. Pointers and rulers were not made for banging desks with. Teachers' feet have other purposes than stamping on the floor.

3. Be not fussy. Self-possession, that quietly takes note of all surroundings and that adjusts itself unruffled and without effort to them all, is the secret of easy government, as it is also the last refinement of the perfect gentleman.

4. Look out for short-sighted children, and for children who are hard of hearing. These physical imperfections are often unknown to the children themselves, and long escape the notice of parents and teachers. Unfortunately not only do they give an appearance of stupidity to children that are really bright, but they must seriously retard progress unless compensated by the considerate arrangements of the teacher. Let as many exercises as possible cause children to lift the eyes up from books to maps, pictures, objects at a distance and work done on the blackboard, so that the tendency to shortsightness may be, so far as possible, checked.

5. Embrace eagerly any opportunity that may be afforded you of visiting the classes of other preparatory teachers. I have seen some excellent work done in some of them, and in almost all the work is good. There is not a single class in which I have not seen at least one thing done so well that I could wish all other teachers of the same grade had an opportunity to see it.

SCHOOL LUNCHES.

BY FLORENCE B. HALLOWELL, WASHINGTON, D. C.

This subject, though seldom if ever touched upon by the general press, is certainly of sufficient importance to be discussed in THE JOURNAL; bearing, as it does, directly upon the ability of children to grasp intelligently the ideas presented by the teacher.

Not long since I chanced to be present at the noon hour of one of our large public schools. I was taken from room to room by one of the teachers, who was interested in explaining to me the course of study in the different grades. We arrived at last at the basement, where,—it being a stormy day,—the girls had assembled to eat their lunches. In the adjoining basement the boys of the male department had been let loose, and could be heard shouting at the top of their voices as they engaged in various games.

Being an earnest advocate of plain, wholesome living, the contents of the many lunch-baskets open before me shocked and surprised me. How can parents be so indifferent to the welfare of their children as to provide for them a daily diet of pickles, rich cake, pie, and preserves? How can children be expected to be healthy and to have clear, vigorous intellects, on such a diet? Not a basket was without a pie, and mince-pie,--the worst of all,--seemed to be the favorite. Every basket had a goodly share of cake, too; and some held cracked nuts. Big, green cucumber pickles and limes were devoured with avidity; and some of the girls had in little tin baking-powder cans chow-chow, loaded with mustard. Instead of sandwiches of cold meat or ham, the bread was spread with sugar, preserves, honey, or molasses. Few baskets contained the healthiest of all food,—fruit. I suppose these girls,—ignorant of the first laws of health,—would sincerely pity any companion whose lunch-basket contained only a ham-sandwich and an apple. They appeared to vie with each other in producing the richest food from their store, and several who had brought candy were looked upon with curious eyes. One basket contained only a rich cream-puff and a pickle. Think of it!

It is universally conceded, I believe, that rich food makes the brain sluggish. That, in order to make a brilliant record as a writer or a philosopher, a man or woman must forbear to tickle the palate with dainties. How can parents expect good school reports, or teachers look for intelligent and rapid progress in studies, when the young minds are nourished to such an alarming degree on indigestible food?

During the afternoon two of the girls in the room of my friend were excused from school on account of headache. No wonder they had headache! They may expect to have it all the rest of their lives unless they learn to enjoy simple, nutritious food. Many of the girls bore testimony to the pickles, pie, and rice cake they ate, in their pale cheeks and heavy eyes.

As I left the school-house I saw an old man with only one arm, standing near the fence with an umbrella over him. A large tray was suspended from his shoulder by a strap. On the tray was a motley collection of lard-soaked doughnuts, partially decayed apples, fruit-cake, and cracked nuts. Stepping up to him, I asked him if he found much custom for his wares. "Lor, yes'm," he answered. "I gen'ly sells out every noon-time, and has to go back home for a fresh lot before school lets out." "Do the children buy of you after school, as well as at noon?" I asked. "They buys a deal," he answered. "They gets hungry a-going home, an' wants suthin' to chaw on." "And have poor appetites for their dinners in consequence," was my mental conclusion, as I walked away.

Just below the school-house was a small store kept by an old woman. The stock consisted of candy and cake, pop-corn balls, and nuts. Her trade, I understand, was entirely confined to the children of the public school.

There is, evidently, too little attention given in the home to this matter of lunches. What Mary or John likes, and not what is best for them to eat, goes into the basket. They are fond of pie and cake,—as are most children,—and pie and cake go into the basket without any regard whatever to a probable headache or a possible attack of indigestion. And yet it is an easy matter to get up a healthy and appetizing lunch without recourse to injurious dainties. We have now-a-days the most delicious potted meats, turkey, chicken, ham, and tongue, which can be bought at a very reasonable price when we consider the fact that they are so condensed that a little of them goes a long way. A couple of sandwiches, spread with any one of these meats, an apple, or any other fruit in season, is sufficient to satisfy any child whose taste has not been perverted beyond repair.

I was once at the house of a friend who considered herself a great economist. She allowed nothing to be wasted. The odds and ends were looked after with unfaltering vigilance, and everything turned to account in one way or another. But one day she failed in the baking of a fruit-cake. It came from the oven heavy as lead, and would in most households have gone directly into the swill-pail. Not so here. "This is too bad!" I heard her say to her eldest daughter. "It's a shame to have such good materials ruined. But never mind; it shan't be wasted. I'll give it to the children for lunch. They'll never know the difference." And into the lunch-basket it went, daily, I suppose, until the last crumb was disposed of, dealing headache and indigestion right and left. In my opinion it had far better have been "wasted."—*New England Journal of Education.*

ORAL LANGUAGE LESSONS.

BY JAMES L. HUGHES.

I. Kind.

1. *Incidental.* These should form a part of every lesson in which the pupils have an opportunity to speak. Their chief function is to correct errors of all kinds.

2. *Special.* These should take the place of what are commonly called grammar lessons until the pupils are about ready to enter the Fourth Book.

II. Objects

Oral language lessons should include constant and careful attention to the following:—

1. *The position of the pupil.*

(*a*) He should stand on both feet.
(*b*) He should stand in the aisle.
(*c*) His head should be held up, and his shoulders back.
(*d*) His hands should be at his sides, without touching the desks.
(*e*) His eyes should be directed to the person addressed.

2. The pupils should speak in complete sentences. In elliptical questioning, or when the answer is merely a name or a date. this rule need not be followed. Indeed whenever the pupil's answer consists merely of a repetition of the chief part of the teacher's question with a name or a fact inserted to complete it, the development of the language power of the pupil is extremely small.

3. Grammatical accuracy.

4. Pronunciation, including clear articulation, especially of words that must necessarily be used very frequently, and are almost universally mispronounced, such as, was, and, do, you, just, can, because, such, have, the ending ing, &c.

5. Pitch and volume of voice.

6. Rate of utterance, including pausing.

7. Habits of inflection, emphasis, &c.

8. Spelling of difficult words, as a preparation for written lessons.

III. General Suggestions.

1. The teacher should be a correct model.

2. Language lessons should consist of PRACTICE not *rules.*

If pupils can be led to talk freely in expressing their opinions or in repeating what they remember in their own language the chief difficulty will be overcome. Nothing will remain but the correction of errors. The erroneous liabilities of the individual pupils can only be found out by free conversation on the part of the pupils themselves.

3. Pupils should be trained to notice incorrect expressions and errors in pronunciation. This is the most essential step in teaching them to avoid them.

4. The pupils should make the corrections themselves, in both incidental and regular lessons. They will be delighted with the privilege of making corrections or improvements in expressions used and what one omits will be suggested by another.

Directly, this exercise acquaints the pupil with the common errors of speech, refines his style and improves his vocabulary; indirectly, it promotes readiness in speaking and facility in expression.

5. In giving formal lessons on language the teacher should direct the attention of his class to the use of one class of words, or to one construction at a time. Each class should have its own specific work to do. It will not do to allow hap-hazard work in a regular language lesson. The teacher in his lesson plan must have a definite aim, for example, the correct use of the pronouns, and he must also arrange his plan of teaching this lesson so as to secure the use of the pronouns in every conceivable way. This must not be left to chance, but should be the necessary outcome of a series of pre-arranged illustrations and skilful questions.

In leading the pupils to use pronouns in their conversations, some plan similar to the following may be used. Each teacher will of course use as many plans as possible, but each plan should make it essential to use a pronoun in some part of the sentence. The other parts of speech may be dealt with in a similar way.

"Mary and Jane, you will each take a pencil in your hand."
"Mary, tell me what you have."
"*I* have a pencil."
"Jane tell me what you and Mary have."
"*We* have pencils."
"Tell me another way Mary."
"Jane and *I* have each a pencil."
"Tell the same fact to Mary herself, Jane."
"*You* and *I* have each a pencil."
"What has Jane, Mary?"
"*She* has a pencil."
"Tell me what Mary and Jane have, John."
"*They* have pencils."
"Whose pencil have you, Mary?"
"*This* is *my* pencil."
"Say the same thing in another way."
"*This* pencil is *mine.*"
"Tell Mary whose pencil she has in her hand, Jane."
"*That* is *your* pencil, Mary."
"Another way."
"*That* pencil is *yours,* Mary."
"Speak to Jane about both pencils, Mary, and tell her who owns them."
"*These* pencils are *ours.*"
"Another way."
"*These* are *our* pencils."
"James, tell me whose pencils those are."
"*Those* are *their* pencils."
"Another way."
"*Those* pencils are *theirs.*"
"Samuel, tell Mary and Jane whose pencils they have."
"*Those* are *your* pencils."
"What are you doing with the pencil, Mary?"
"I hold *it* in my hand."
"Take both, Jane, and tell me."
"I hold *them* in my hand."
&c., &c., &c.

Formerly it was regarded as sufficient to compel the pupils to recite by rote:—

Singular.		*Plural.*	
Nom.	I	*Nom.*	we
Poss.	my or mine	*Poss.*	our or ours.
Obj.	me.	*Obj.*	us.

With the corresponding tables for the second and third persons. What a developing exercise this *was* and I fear *is*! What is needed is PRACTICE instead of *rules* and *lists.*

Of course in the average class, the replies would not be at all accurate at first. "Jane and *me,*" "*me* and you," would occur frequently. Practice by the pupil who blundered, is the only way of correcting such mistakes.

Fragments.

The complaint is often made that teachers are treated disrespectfully by society and by governments. There is often too much truth in the charge. It is not very creditable to those who have left the profession of teaching for some more lucrative (not higher) position, that they are frequently most outspoken in their expressions of contempt for the position which they used as a temporary means for obtaining a livelihood. Regarding the school as a mere source of income it need not be a matter of surprise that they should have a contempt for the teaching they did themselves. Probably the public may have shared their feelings. President Arthur was a teacher in early life and when the State and City Superintendents of Schools called on him recently during their annual convention in Washington, they expected a courteous if not a sympathetic reception. They were grievously disappointed, however, according to the description given by the editor of the *School Bulletin*, who was present. The President was stiff and formal, and did not seem to remember that he had ever taught in a district school. After delivering a brief response to their address, he turned to his clerk and proceeded with his business before his guests had left the room. One of the Superintendents in response to the general remark: "He seems to care little for the schools," said "He can not think less of me than I do of him."

"The schools have ruined my child." So say many thoughtless parents, led by equally thoughtless medical men. So said a sorrowing father recently. "My daughter is completely paralyzed," said he; "she cannot speak plainly; she cannot raise her hand, and I blame the school for it. So does the doctor." Knowing that she had been entirely excused from home work for about two years, that she was 14 years of age and yet only in the junior third book, I knew that her school work could not possibly have injured any healthy child of her years. Enquiry showed clearly that she was born with a nervous system prone to disease, that she had been subject to St. Vitus' dance, that in fact she should never have been sent to a public school at all. Notwithstanding these facts the intelligent medical man instead of prescribing open air exercise and proper food, allowed the child to be sent to school, raised no objections when the piano was bought and the poor girl set "to practise," looked helplessly on and drew his fees as family physician while the weak system gradually became enfeebled, and when it finally gave way owing to his neglect or ignorance, he with questionable honesty tried to blame the school. There are children who should not be allowed to go to school. She was undoubtedly one of them. It was a great wrong to allow her to go, and the family physician was responsible for the wrong. He was also guilty of deception and injustice when he tried to shoulder his own responsibility on the school.

A very good plan is adopted in some places to secure the reading of useful books by pupils. A blank book is kept in each class in which a page is allotted to each pupil, and a record is entered by the pupils themselves monthly of the books they have read during the month, with the names of the authors. This leads to systematic reading by the pupils, and gives the teacher an opportunity to direct them in forming their reading tastes. Teachers have no other way in which they can more effectively influence the characters of their pupils in a right direction. Try the experiment.

Question Drawer.

W. H. H.—(1.) The "Privy Council" in Canada is made up of the Ministers or Heads of Departments who are chosen to advise the Governor-General with respect to public affairs. These Ministers, taken collectively, are usually designated the "Cabinet," and the terms "Cabinet" and "Privy Council" are therefore in Canada popularly regarded as synonymous. In England they are not so, for there the Cabinet is virtually a committee of the Privy Council, made up of such members of the latter body as are in accord with each other on affairs of state. It is a question of constitutional law about which there may be differences of opinion, whether in Canada, as in England, all Cabinet Ministers are really members of the Privy Council or not, as the British North America Act says nothing on the point. In both countries members of the Cabinet are collectively responsible to Parliament for all the executive acts of the Government, the Queen in the one country and the Governor-General in the other being entirely without responsibility to the people. (2.) The Australian colonies are not united together in one confederation as the Provinces of Canada are. Each has its own government and its own capital city. New Zealand comprises more than one island but it is all under one Government and one Legislature. (3.) Opinions vary as to whether the correct mode of expression is "three times five is fifteen" or "three times five are fifteen." The sticklers for formal grammar and minute parsing will probably prefer the latter because the former is not parsable according to their ideas. Our preference is for the first form and assuming it to be good English, the subject "three-times-five" should be parsed as one word. [Your fourth question is one of a numerous class to which we do not feel justified in giving up our space. The object of this department being to aid the teacher in his work by giving him information which he requires and which many teachers can procure with great difficulty, if at all, owing to the want of good books of reference.]

E. W.—(1) The correct pronunciation of the word "Manitoba" must, like that of other names of places, be finally determined by local usage. There can be no doubt that as pronounced by the Indians and early English speaking settlers of the Red River Valley the stress was divided between the second and fourth syllables, thus: Ma-nít-o-bá, and it is to be regretted that this pronunciation was not more strictly adhered to. The general tendency now, however, is to pronounce it Ma-ni-tó-ba, and unless the advocates of the more euphonious and otherwise desirable Indian pronunciation take steps to check the process their favourite form will speedily die out. (2) The proper spelling of the name of the territory adjacent to Ontario, according to the Act creating it, is "Keewatin." In the session of 1878 the Hon. David Mills, then Minister of the Interior, introduced into a bill relating to that region the more correct spelling, "Keewaydin," but the bill was never passed and the old spelling remains as a matter of statutory enactment. The correct sound of "a" in Keewatin is ascertainable from the fact that the form "Keewaydin" gives a much better idea of the Indian pronunciation of the word than "Keewatin" does. The meaning and origin of the name "Keewaydin" are indicated in the concluding lines of Longfellow's "Hiawatha," which are as follows:—

Thus departed Hiawatha,
Hiawatha the Beloved,
In the glory of the sunset,
In the purple mists of evening,
To the regions of the home-wind,
Of the northwest wind, Keewaydin,
To the Islands of the Blessed,
To the kingdom of Ponemah
To the land of the Hereafter!

Notes and News.

ONTARIO.

The first annual convocation in connection with the Toronto Baptist College was held on the 2nd of May. This being the first session of the institution there were only three graduates all of whom delivered thoughtful addresses on the occasion. Their names are Duncan D. McArthur, of Dominionville, James McEwan, of Brantford, and William T. Tapscott, of Toronto. The attendance of students has during the session been fair for a commencement year. The Rev. Dr. Castle, President of the College, presided and

delivered an appropriate address. The college building is known as McMaster Hall, the building fund having been entirely donated by the Hon. Wm. McMaster of Toronto. The college course is entirely theological.

A teacher in the County of Lennox, writes to explain how it is that teachers get such low salaries. He says:—"The reason is that teachers underbid each other on account of some advantage, real or supposed, possessed by one school over another. If teachers *will* underbid each other, of course no advance in salaries can reasonably be expected, and the result is that the best teachers do not always get the best schools, because good teachers will not reduce their salaries. If teachers would form a union similar to the Trades Union, they might control in a greater degree their own salaries."

The following subjects were for discussion at the teachers' convention at Port Hope, June 2nd and 3rd:—How may the tendency to vicious literature be best checked? Would teachers' unions be beneficial to the profession? What part of the school exercise should tend to the cultivation of memory? What is the best plan to prevent tardiness? To what extent is the teacher responsible for the moral training of his pupils? Would you prevent whispering in the school-room; and if so, how? What are *proper* incentives to study? How would you check truancy? Should fractions be taught before reduction and the compound rules? Are school exhibitions beneficial? Should spelling be taught orally? How can we make indolent pupils study? By what means can we induce parents to take greater interest in school work? How often should written examinations be held? How would you assist pupils in preparing their reading lessons in the different classes? To what extent would you ask pupils to correct each others' mistakes? When and how would you begin the teaching of problems in arithmetic to young pupils? How can you prevent children counting on their fingers?

It is said that Mr. Miller, a Huron County inspector of schools and a candidate for the inspectorship of prisons, is to be the new bursar of the asylum at Orillia. The pay and the emoluments of the latter office are said to be superior to that of the inspectorship. —Collingwood *Messenger.*

There is to be a convention of the Business Educators of America held at Cincinnati, Ohio, on the 6th of June, and Mr. J. W. Johnson of Ontario Business College, Belleville, is on the programme as one of the speakers.—Belleville *Ontario.*

The following address was presented to H. J. Galton B.A., Head Master Brampton High School, with a handsome clock and two beautiful accompanying ornaments, on the occasion of his departure from Brampton last Easter:—"To J. H. Galton, Esq., B.A., Head Master Brampton High School, Dear Sir, We the teachers and pupils of the Brampton High School cannot permit you to sever your connection with us, without expressing the high respect and esteem in which you are held by us, and our sincere regret at your departure. We desire also to make known our high appreciation of your patience and kindness in dealing with our faults, your untiring exertions for our advancement, and the ability you have displayed not only in directing our studies preparatory to examinations, but also in giving us such instruction as will more materially fit us for the active duties of life. We feel confident that the high position our school now occupies amongst those of the Province, is due in no small degree to your constant zeal and energy in furthering its interests. As a slight token of our affectionate regard, please accept the accompanying clock, which, we trust, may serve to call up pleasant recollections. With our present, receive, dear Sir, our warmest wishes for the health and prosperity of yourself and Mrs. Galton, and permit us to express an earnest hope that, in your new sphere of labor, you may meet with that success which your merits so well deserve. Assuring you that you will long be held in pleasant remembrance we beg to subscribe ourselves yours most affectionately." Mr Galton made a touching and appropriate reply.

By special arrangement with the Education Department, the Entrance and Intermediate Examinations are to be held in Pickering College. This will be a great convenience to its students.

Mr. G. Kimmerly, assistant teacher in the high school, Napanee, has resigned his position and gone to Toronto, having received a situation in the office of Mr. Kerr, manager of the Northern and Northwestern Railway. Mr. Kimmerly was an excellent teacher, and the remark of the head master, that he was "heartily sorry to lose his services" says a great deal. The vacancy caused by his resignation has been temporarily filled by Mr. Fulford Ruttan.

The Toronto University Local Examinations for Women will again be held in Pickering College. This year the number of candidates is eleven.

Mr. M. J. Glass, who is about resigning his position as head master of the London West public school to accept the head mastership of the Waterloo North school in the city, was recently presented by the pupils of his school with a very handsome album and music box combined. The presentation was made by Miss May Lackey, Master William Wattam reading a kindly-worded address, signed by Georgina Calver, Vesta Ross, Mary Sime and Nellie Hagary. The album was purchased from Jas. I. Anderson & Co.

Mr. Robert Graham, of the Arva public school was presented by his pupils with a very handsome $25 gold ring. Mr. Graham will take the head mastership of the London West public schools shortly. During his stay at Arva he has made himself immensely popular. Miss K. M. Marshall was also presented by the scholars in her room with a neat little autograph album.

The May number of the CANADA SCHOOL JOURNAL is excellent in the tone and variety of its articles. The professional department is very full, and cannot fail to be edifying to all those for whom such problems and hints are specially designed.—Bowmanville *Observer.*

Mr. C. F. McGillivray, B.A., late assistant master in the Whitby Collegiate Institute, has entered on the duties of Head Master of Fergus High School, salary $800. Mr. J. McCollum, B. A. is his successor.

Another primary department under the charge of Miss Mitchell, has been opened in the Model School, Whitby. There are now ten teachers employed in the Public Schools of the town. The average attendance during April was very low, owing to the prevalence of various diseases in a mild form.

The school trustees of Belleville have decided to abolish the Model School in connection with the Central School. It is probable that a Model School for the county may be re-established in Trenton.

William Oliver, B.A., Bowmanville, has been appointed to the Principalship of the Brantford Collegiate Institute. There were thirteen applications for the position, embracing qualifications of a very high order. It would have been difficult for the Board to make a better selection. Mr. Oliver received his preliminary education at the Woodstock High School. At a meeting of the Board of Education, Bowmanville, it was resolved that the chairman (Mr Couch), Col. Cubitt and Mr Higginbotham, be a committee to get up a suitable document or testimonial to present to Mr. Oliver, in reference to the efficient and faithful discharge of his official and public duties in connection with the school.

Mr. D. W. B. McKay, Head Master of St. George's School, London, is about to remove to Winnipeg. His late pupils presented him with a piece of silverware.

The East Middlesex and some other teachers have engaged a local teacher to give them a course of lessons, with the view of enabling them to teach music by the Tonic Sol-fa method. The preliminary lesson was given last Saturday. It is time the teachers were awakening to the importance of singing in their schools, and the fact that it ought to be one of the regularly taught branches, and taught by the regular teachers. Trustees who realize the advantages of vocal music in their schools could secure it by advertising for teachers competent to teach singing. It is said on good authority that if all the teachers understood music as presented by the Tonic Sol-fa notation, there would be only a very small percentage of them who could not teach singing in their schools.

The Stirling School Board and the Inspector have fallen out over the retention on the part of the former of a teacher without the proper qualifications. One of the members of the Board became so angry at what he chose to regard as undue officiousness that he moved a resolution asking the County Council to remove the offending official. The resolution had no seconder.—Toronto *Mail.*

The London (West) School Board, in accepting the resignation of their Head Master with regret, a member said it would be a lesson to the board in future, however, to give such remuneration to a first-class teacher as would induce him to remain with them. It would be well if school boards generally would lay such a lesson to heart.

A movement is on foot in Brantford, led by Dr. Harris, an indefatigable progressive worker on the School Board, to give the teachers of the Public Schools the benefit of a course of lessons in reading and elocution. This is a step in the right direction.

The Bowmanville Board of Education have appointed a committee to procure a bust of the late Dr. Ryerson for the High School.

Mr. A. Carruthers has resigned his position as Classical Master, Lindsay High School, as he intends giving up the profession of teaching.

The Hamilton *Times*, while reviewing the state of education in the Collegiate Institute of that city, says:—It has come to our knowledge that students of Hamilton Collegiate Institute, who could matriculate at the University, or pass the intermediate examination, could not write a legible page; could not narrate a simple incident without mistakes in spelling and syntax.

At the recent meeting of the London Teachers' Association Miss Victoria Drury read an essay on "Regularity and Punctuality of Attendance," holding forth the idea that the marks system failed from the fact that those who needed them least as a stimulus were the very ones who generally obtained the most. Again, the note system did not meet the case, from the fact that many, very many, forged notes to suit themselves, and thus freed themselves from the censure of the teacher.

Mr. R. M. Graham has been appointed head master of London (West) public school, in place of Mr. M. J. Glass who has resigned.

Inspector Girardot, of Essex County, intends to present again this year two silver medals to the candidates, one French and one English, of the north riding who will obtain the highest numbers of marks at the next examination. The candidates must not be over twenty-four years of age, and the medals will be given at the convention of teachers to be held next October.

In Orangeville high school the attendance is rapidly increasing, and good general progress is reported. There are over 100 pupils now attending.

The Corporation of Trinity College, Toronto, at a recent meeting resolved to modify the regulations respecting divinity degrees with a view to enabling graduates in arts to take the degree of B.D. on two special examinations, the latter of which may be confined to one optional group of subjects out of five. The subjects are similarly arranged for the D.D. degree which may be taken by a B.D. of five years' standing. It is hoped in this way to train up a number of clergy who in addition to having a sound general knowledge will be thoroughly proficient in some one branch of theological study.

NOVA SCOTIA.

The meeting of the Teachers' Association for Inspectoral District No. 4, (Counties of Annapolis and Digby), held at Annapolis Royal on the 27th and 28th of April, was a very interesting one. The Association was organized with the following staff of officers: President, Inspector Morse; Vice-President, S. C. Shafner, A.M.; Sec-Treas., J. M. Langley, A.M.; Executive Committee, Messrs. A. D. Brown, N. E. Butler, R. W. Ford, Misses Langley and Bonyman. The following programme of subjects was provided by the Executive Committee: "Needed Reforms in our Public Schools," Mr. J. A. Balcom; "Best Methods of Teaching Geography," Mr. James P. Mowlan; "The Successful Teacher," Mr. A. E. Read; "Improved Methods of Teaching since 1848," Mr. P. Whitman; "The Teacher's Opportunities," Mr. N. E. Butler; "Oral Lessons in Analysis," Mr. A. D. Brown; "Process of Subtraction," Miss S. Bonyman. The subjects above indicated were treated in a broad and thorough manner, and most of them gave rise to animated discussions. Prof. J. B. Hall, Ph. D. of the Provincial Normal School was present during the exercises of the first day and materially contributed to their interest. The public meeting held under the auspices of the Association though not largely attended was a spirited one. Addresses were delivered by the Superintendent of Education, Rev. Mr. Ritchie, Rector of the parish, Dr. Hall, and others.

MANITOBA.

At a meeting of the Board of Protestant school trustees for the city of Winnipeg held recently, the following rules relating to salaries of teachers in the employment of the board were introduced by Mr. W. F. Luxton, chairman of the school management and unanimously adopted, viz:—

MALE TEACHERS.—Teachers of Standards IX. and X.—First year of service, $1,000; second year, $1,100; annual salary after second year, $1,200. Teachers of Standard VIII.—First year of service, $800; second year, $900; annual salary after second year, $1,000. Teachers of Standards V., VI. and VII.—First year of service $700; second year, $750; annual salary after second year, $800. Teachers of Standards III. and IV.—First year of service, $650; second year, $700; annual salary after second year, $750.

FEMALE TEACHERS.—Teachers of Standards IX. and X.—First year of service, $650; second year, $700; annual salary after second year, $750. Teachers of Standard VIII.—First year of service, $600; second year, $650; annual salary after second year, $700. Teachers of Standards V., VI. and VII.—First year of service, $550; second year, $600; annual salary after second year, $650. Teachers of Standard IV.—First year of service, $450; second year, $500; annual salary after second year, $550. Teachers of Standards I., II. and III.—First year of service, $400; second year, $450; annual salary after second year, $500. The number of years' service, in cases of promotion, shall be determined by the time each teacher has been in the employment of the board. The teachers at present in the employment of the board shall receive the maximum salaries above indicated from the beginning of the present year and hereafter.

CERTIFICATES.—No teacher shall be hereafter considered eligible for appointment to a position in the schools whose attainments are not equal to these indicated by a second-class provincial certificate. No male teacher shall be considered eligible for appointment or promotion to the charge of any class from Standard V. upward, who does not hold a first-class provincial certificate.

PROMOTION.—Promotion shall hereafter be made on the following conditions: 1. That the candidate's past efficiency and present fitness for the position be favorably reported upon by the inspector; 2. that the conditions regarding certificates be fulfilled; and 3. that seniority of service shall be considered a prior claim, the other two conditions being fulfilled.

The Local Legislature now in session has before it a Bill to give effect to the resolutions of the Protestant section of the Board of Education relating to the establishment of a Normal School Department in connection with the city schools.

The University Examiners are engaged in the preparation of questions for the examinations which commence on the last Monday in May. There are a number of candidates.

The Board of school trustees, Portage la Prairie, have called for tenders for the erection of their new central school, which promises to be one of the best buildings of the kind in the Province.

DALHOUSIE COLLEGE, HALIFAX.—CLOSING EXERCISES.

The closing exercises of the annual session of Dalhousie College were held in the Legislative Assembly Room, Halifax, on the 27th of April. The spacious hall was crowded with a brilliant audience. The very Rev. Principal Ross, D.D., presided. The Principal delivered an introductory address in which he recounted the history of the session, which had been an exceedingly satisfactory one. He alluded in terms of grateful appreciation to the benefactions of Mr. Munro, which, handsome as they have been, were not yet, he believed, at an end. The following is the list of University prizes:

Classics—Fourth year—Trueman, J. S. Third year—Bell. Second year—McLeod, J. P. First year (1) Gammel, (2) Aiton and J. M. McLeod.

Mathematics—Second year—Murray. First year—Lillie Calkin.
Astronomy and Optics—Campbell, G. M.
Physics—MacGregor.
Mathematical Physics—Reid.
Ethics—Carson.
Metaphysics—Taylor, W. P.
Logic—McLeod, J. P.
Rhetoric—McLeod, J. M.
Chemistry—(Inorganic) McLeod, J. P.; Organic (second year), Smith.
History—Crowe.
French—Fourth year—Mellish. Third year—Smith.
Geology—Cameron.
Botany—Smith.
Hebrew—Carson.

The following degrees were conferred:—

Bachelor of Arts with Honors.—George Murray Campbell, Truro; James Starr Trueman, Carleton, N.B.

Ordinary Degree of Bachelor of Arts.—George Stephen Carson, Sussex, N.B.; Thuson Fulton Davidson, Halifax; William Ritchie Fraser, Mt. Thom, Pictou; James Harris Knowles, Milton; Robt. Landells, Halifax, James Walter McKenzie, Strathalyn.

P. E. I.—Humphrey Mellish, Halifax; George Gaddie Patterson, New Glasgow; Edgar James Thorey, Guysborough; Thomas Stewart, Whycocomagh.

Ordinary Degree of Bachelor of Science.—Alex. Cameron, Newton, Guysborough.

The valedictory oration was pronounced by Mr. H. Mellish of the graduating class. Addresses in response to the call of the

Principal were delivered by His Honor, Lieut.-Governor Archibald, Mr. W. J. Stairs, and Dr. Allison, Superintendent of Education. The *Herald* gives the following abstract of the remarks of the last named gentleman :—

After a humorous introduction he discussed the proposition that "knowledge is power," in relation to collegiate education, holding that much of the literary lumber stored away in the garret of the memory was *powerless* as anything well could be. He claimed that that alone was true knowledge by whose acquisition *power* generated—power to do what otherwise could not be done. To this test all our schools of learning and colleges must submit. Do your graduates exhibit executive capacity of intellect, power to use their mental faculties with a readiness and vigor which testify to the training which they have received? He used the term power in no narrow physical or mechanical sense. Thought is really the highest kind of action. The age, however, was past which was satisfied to conceive of knowledge as simply a treasure stored away, to be drawn forth from its receptacle for enjoyment merely from time to time as a cow chews her cud, or a clergyman with quiet conscience smokes his pipe. Our age sets value chiefly on that knowledge which is in relation to the activities of man's nature, inspiring, directing, and controlling them. He vindicated the universities of the Middle Ages from charges sometimes brought against them. The best of them in their brightest days were not mere schools of philosophy and theology, but great seats of learning, in thorough sympathy with their age, and teaching ambitious young men whatever they required to learn to fit them for conspicuous stations. He considered at some length the Arts of our colleges, deeming that they furnish an admirable scheme of studies for generic mental culture when naturally and logically pursued. He deplored the fact that so many young men entered college in an unprepared state and therefore failed to derive real benefit from the studies pursued. He was glad that the question of higher education was being discussed among us. It was not for him to predict the issue. On so important a question it was desirable that public opinion should be well developed before educational reform should be practically attempted. Dissenting from the criticism of Mr. Blake, he thought Mr. Gladstone was quite right in considering it important to know whether a given question was or was not "within the range of practical politics." The period of discussion and formative opinion naturally precedes that of action. In conclusion, Dr. Allison exhorted the young men graduating to remember that they now belonged to the republic of letters and to take *Ne quid republica detrimenti caperet* as their motto. Let them look at the future with hope, faith, and courage.

THE NEW ROYAL ACADEMY.

The Marquis of Lorne signalized the earlier part of his *régime* here by establishing a Canadian Academy of Arts and he has just made an attempt to signalize the latter part of it by establishing a Royal Academy of Literature and Science. It remains to be seen yet whether the Academy of Art will take root in Canadian soil, fashioned, as it is, on the lines of an ancient institution in England; but it is safe to predict that the new Royal Academy will be a conspicuous failure. Such organizations cannot be called successfully into being by the *fiat* of any one. There must be a field and a felt want for them or they will die of inanition. We have in this country several learned associations of a voluntary character but they have each a *raison d'être* and the new Academy has none.

The first meeting took place at Ottawa a few days ago when the various sections met separately for organization, reading papers, discussions, &c. The sections are four in number as follows:—(1) French literature; (2) English literature; (3) Mathematical, Physical, and Chemical Science; and (4) Biological Science. The proceedings of the general meeting commenced with an address from His Excellency which was followed by papers from Sheriff Chauveau of Montreal and Dr. Dawson of McGill College. The following gentlemen were elected officers of the Society for the current year:—

President, J. W. Dawson, C.M.G., LL.D., F.R.S.; Vice-President, Hon. P. J. O. Chauveau, LL.D.; Hon. Secretary, J. G. Bourinot, F.R.S.; Hon. Treasurer, Dr. Grant of Ottawa.

The next meeting of the Royal Society will be held in May 1883.

In the Biological section the following officers have been elected: President, Dr. Selwyn; Vice-President, Dr. Lawson; Secretary, J. F. Whiteaves.

In the Physical Science section:—President, Dr. Sterry Hunt; Vice-President, Mr. Carpmael of Toronto Observatory; Secretary, Prof. Cherriman.

In the French section:—President J. M. Lemoine; Vice-President, Mr. Faucher de St Maurice; Secretary, Benjamin Sulte.

In the English section:—President, Dr. Wilson of Toronto; Vice-President, Goldwin Smith, M.A.; Secretary, Geo. Stewart Jr.

UNIVERSITY OF McGILL COLLEGE.

Since the last issue of the SCHOOL JOURNAL the proceedings in connection with the close of the recent session of this institution have taken place. Hon. Mr. Justice McKay of Montreal, presided on the occasion and there was a large attendance of the *alumni*. Principal Dawson, LL.D., C.M.G., in his report of the session, referred to the number of degrees in the course granted at the close of this session, 75 in all, and to the attendance of students, which had been 374, independently of students of affiliated colleges. The learned principal referred to the approaching completion of the Peter Redpath museum, to be opened on the occasion of the visit of the American Association for the Advancement of Science, in August. This would give the University for the first time satisfactory accommodation and means of study for its classes in natural science. It would also give the University the means of aiding the higher education of women more effectually. A less agreeable matter was the financial depression from which the University had been suffering owing to the diminution in the income from investments. This had been met by retrenchments. A public appeal for assistance had so far resulted in an addition to Mr. W. C. McDonald's munificent gift for scholarships, in a sum of about $26,000 added to the endowment fund, and annual subscriptions to the amount of about $5,000. The University, however, could not under present circumstances take its proper position without an addition of at least $150,000 to its endowments. He asked that this should be given within this, the fiftieth year of the University, so that it might commence its second half century with renewed life and vigor. He closed with a few words of congratulation and advice to the new graduates and students.

ONTARIO SOCIETY OF ARTISTS.

The annual exhibition of the Ontario Society of Artists, held during the month of May, was this year fully up to the average in all the departments. This Society has, since its inauguration some sixteen or seventeen years ago, done an excellent work in this country. In reality it embraces in its membership eminent artists all over the Dominion and ought to have been a Dominion society. Had it assumed to occupy the whole field in name as well as in reality the Canadian Academy of Arts would probably never have been organized; and, on the other hand, had the Ontario Society not paved the way the other would not have been as yet a possibility.

All teachers who happen to be in a position to visit Toronto during the exhibition period would do well to call each year and see it. It is difficult to estimate the amount of art education which might in this way be diffused, for a growing acquaintance with works of art is in itself an important means of educating the observer. The School of Design, which has hitherto been carried on under the auspices of the Society is to be transferred to the Department of Education. This institution has not yet been long enough in existence to produce any marked results, but good work has been done in it for some years past, and the training thus imparted cannot fail to have a decided effect on future exhibitions as well as on the application of decorative art to manufactures.

VICTORIA UNIVERSITY—COMMENCEMENT WEEK.

During the third week of May the annual commencement exercises of the University of Victoria College came off with even more than the usual *éclat* at Cobourg. These exercises are always of a varied character, Commencement being at Victoria much more of a "red-letter" season than it is in any other college in the Dominion. The inauguration of the proceedings took place on the evening of Sunday the 14th of May, when the Rev. Dr. Stevenson of Montreal preached an eloquent bacca laureate sermon on "The Ideal in Life," and President Nelles gave the farewell address and counsel to the graduating class. It is needless to say that both efforts were of a high order of merit both intellectually and morally. On Monday afternoon Dr. Stevenson delivered a public lecture on "John Milton" to a crowded audience in "Alumni Hall" and in the evening the Literary Society gave in the same place a varied intellectual and musical entertainment. On Tuesday afternoon there was also a meeting of the "Theological Union" at which an able paper on "The Certainties of Religion" was read by the Rev. J. A. Williams, D.D. On Wednesday afternoon the annual meeting of the Science

Association took place in Faraday Hall under the chairmanship of A. M. Phillips, B.D. The annual lecture under the auspices of the Association was delivered by Dr. Mackenzie of Aurora who took as his subject "The Functions of the Brain." In the evening the annual business meeting of the Alumni Association was held in their hall. Amongst other transactions it was resolved to petition the General Conference to permit the graduates of the University to elect six representatives to the Board in addition to those who now compose that body. In the course of the evening it was announced that Mr. Dennis Moore of Hamilton had subscribed $25,000 towards the endowment of a chair in "Chemistry and Physics" and that with subscriptions already received for the "Ryerson Chair" this made a total of $40,000. The officers of the Alumni Association for the current year are as follows:—James Mills, M.A., President; James Allen, B.A., 1st Vice-President; A. M. Phillips, B.D., 2nd Vice-President: H. Hough, Secretary-Treasurer. In the evening the annual dinner of the Association came off in Victoria Hall and was a complete success.

CONVOCATION.

On Thursday took place the event of the week, Commencement proceedings proper. The large hall was densely packed. The arrival of the graduates and members of the Senate was greeted with loud cheers. The following gentlemen occupied seats on the dais, wearing their various academic costumes: President, Dr. Nelles; Professors Wilson, Burwash, Reynar, Bain, Hannel, and Bell; Rev. Drs. Dewart, Sutherland, Wm. Kerr, M.A., B. M. Britton, M.A., Judge Dean, Dr. Ogden, Rev. D. G. Sutherland, L.L.B., B. D., Rev. J. Philp, M.A., Rev. T. W. Jeffery, Rev. W. Hansford Lazier, L.L.B., J. Mills, M.A., H. Hough, M.A., D. C. McHenry, M. A., Dr. Purslow, H. McLive, M.A., J. C. Field, M.P.P., J. Vance Graveley, Mayor, Mr. Dennis Moore, Rev. Dr. Stevenson. After prayer had been offered by Rev. T. W. Jeffery, Mr. John Shilton delivered the valedictory address choosing as his subject "Thomas Carlyle" and scoring with it a complete success. The ceremony of conferring degrees was then proceeded with and this was followed by the distribution of well merited honors and rewards amongst the successful students. After a brief address from Dr. Ogden to the retiring graduates Dr. Nelles referred in eulogistic terms to the late Dr. Brouse one of the earliest graduates of the University and to the late Rev. Dr. Ryerson who was its first President. Dr. Nelles thus concluded his admirable address: "He congratulated the sister universities of Canada on their growing strength and efficiency and heartily re-echoed the sentiment expressed the other day by Dr. Young of Toronto University, that the country is the better for a variety of colleges, and the similar expression of the Minister of Education for Ontario as contained in his last report, in which he speaks of the denominational colleges as testifying to the penetrating influence of religion in our educational system, and to that freedom of action which will preserve to our different institutions an individuality unknown in the uniformity prevalent in France and not absent in Germany. The example of Britain and the United States was against the system of consolidation, and it would be as unreasonable to work toward such an idea in Canada, as it would be to attempt the amalgamation of Oxford and Cambridge in England, or of Harvard, Yale, and Princeton, in the United States. But while he congratulated Canadian universities on their growing efficiency, he was also obliged to condole with them on their common complaint of inadequate recources—a complaint that comes even from our Provincial University, with her income of over $50,000 a year, and may therefore be still more reasonably expected from the less richly endowed denominational colleges. But this financial distress will ere long pass away, as it has in the colleges of New England. The Wesleyan University of Middletown, which is only some 50 years old, and has had a history very similar to that of Victoria, has property to-day of the value of $1, 400,000 and an income of $900,000. These facts should encourage the friends of Victoria, more especially when we remember that these augmented resources have come from the private liberality of friends and the efforts of Christian churches, and not from the State. There would be some further years of hard struggling before she would be able to boast of an adequate endowment, but we should not be discouraged on that account. Her hope lay in the soundness of the principles on which the University is founded, in the increasing number and wealth of our graduates, and in the strength and liberality of the great Methodist Church of this Dominion—a Church that numbers more than half a million adherents, increasing, too, at the rate of some thirty per cent. in ten years, and raising $150,000 a year for missions. Such a Church is abundantly able, and would ere long be found willing to sustain her universities and schools, and he would venture to say that this educational work is the one enterprise which just now most urgently demands the attention and energetic support of the methodist Church of Canada. (Loud cheers.)" Addresses were also delivered by Drs. Cochrane, Sutherland, and Dewart, by Principal Mills of the Agricultural College, and by Judge Dean. The proceedings of the week were closed by a brilliant conversazione in the evening.

THE WILBERFORCE EDUCATIONAL INSTITUTE.

One of the peculiar educational institutions of Ontario is the school which is known by the above title in the town of Chatham. It is, in its present form, the resultant of the amalgamation of the "British and American Institute" and the "Nazrey Institute," the former of which was founded in 1841 through the instrumentality of Thomas Butler, Rev. Josiah Henson, J. C. Brown and others, while the latter originated in 1869 through the exertions of the Right Rev. Willis Nazrey, the Rev. R. R. Dinsey, the Rev. Walter Hawkins and others. In 1872 the "British and American Institute" was incorporated under its present name and in 1873 the "Nazrey Institute" was incorporated with it, Acts being passed for that purpose by the Legislature of Ontario. The property is at present vested in a board of trustees who have the power to appoint new members whenever vacancies occur. The endowment is sufficient to enable them to pay a fair salary to the Principal; the present head of the school A. M. Lafferty M.A., receives $1300. The programme of the school, which serves the purpose of a "high school" for coloured pupils, is the one used in the Provincial high schools. A considerable proportion of the pupils are in the preparatory department which is to be regretted as the energies of the staff might be more usefully expended on high school work proper. The building is somewhat antiquated but the tuition is perfectly free. Mr. Lafferty's incumbency is expected to terminate in a few months and it is to be hoped that he will be suceeded by some one who is at least equal to him in scholarship experience. It would be well worth while to make a special effort to put the Institute in a thorough and equipped condition. To found such a school would at the present time be no easy task and it would be a serious loss to the locality should it be allowed to fall into a state of inefficiency.

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

CHATHAM DISTRICT, COUNTY OF KENT.—The half-yearly convention of the Chatham District Teachers' Association, which has for its constituency West Kent and the town of Chatham, was held at the latter place on Thursday and Friday the fourth and fifth of May. The various sittings took place in the Central School except the Thursday evening popular lecture which was delivered in the Temperance Hall. The lecturer on this occasion was Thomas Kirkland, M.A., Science Master in the Toronto Normal School. He took for his subject "The Succession of Life upon the Earth" and by the aid of the stereopticon and the oxy-hydrogen light made it highly interesting as well as instructive. To the regret of the teachers the audience was not by any means as large as the reputation of the lecturer and the nature of the occasion justified them in expecting. The proceedings of the convention proper commenced on Thursday morning with the usual routine business after which Mr. C. P. Kellogg gave an admirable illustration of his method of teaching reading as an elocutionary exercise. Mr. Kellogg took for his lesson several passages in the second reader containing dialogue and made the pupils read them with correct emphasis and inflection, omitting the whole of the narrative words. He did not burden their memories or confuse their understandings with rules of any sort but gave them good models to imitate and succeeded wonderfully in getting them well imitated and in keeping both pupils and spectators fully interested. The next divison was devoted to "Canadian Series of Readers" and in the absence of W. M. Nichols B.A., whose name was coupled with the subject on the programme, it was briefly discussed by W. Houston M.A. representing the firm of W. J. Gage & Co., and Mr. David Boyle of the Canada Publishing Co. No action was taken by the Association except to declare a new series of readers a necessity. In the afternoon a number of questions were collected on slips of paper to be answered by a committee afterwards through the press. Mr. Thomas O'Hagan, principal of the Chatham Roman Catholic Separate School then read a suggest-

ive paper on "The use of Words" in the course of which he impressed some useful and practical lessons. The rest of the session was devoted to an able paper on "Domestic Health" by G. T. McKeough M.D. whose remarks were calculated not merely to supply his hearers with a number of significant facts but also to show them the general direction in which their further prosecution of the subject should te d. On Friday morning Mr. J. Donovan criticised the high school entrance examination, objecting to history and literature as unsuited to the capacities of rural schools from which the high schools draw their pupils. Mr. Kirkland gave during the day three valuable prelections, one on mensuration to show how much can be accomplished in that branch of mathematics without the assistance of Euclid; one on geometrical deductions; and one on "combustion," illustrated by chemical experiments. Mr. G. R. Cruickshank discussed the topic "Physical Geography" protesting against the present methods of teaching and examining in connection with that science, and dwelling on the necessity of paying more attention to what is of permaneut and universal value and less to mere topography. D. S. Paterson B.A. delivered a brief but practical address on "Development of character in the School Room" and the discussion of the points he raised was continued by several of the members. The division allotted to G. W. Ross M. P. was, in his absence, taken up by W. Houston who illustrated in a practical way the use which might be made of the "newspaper" as a means of education both at home and in the school room. After the election of officers for the ensuing half year the Association adjourned to meet again at the call of the executive committe.

NORTHUMBERLAND.—A very successful meeting of the Northumberland Teachers' Association was held in Proctors' Hall, Brighton, on Thursday and Friday 4th and 5th of May. During the short forenoon session general topics were discussed and the following gentlemen were appointed a committee on resolutions:—Messrs. Sykes, Black, Dixon, Boyd and Inspector Scarlett. At 2 p.m., the subject of "Geography" was introduced in an able essay by Mr. S. E. Dixon, followed by Mr. E. Hayward. R. K. Orr, B.A., next discussed the "Railways of Ontario." He referred to the significance of recent amalgamation and discussed somewhat minutely the location and projected routes of several new lines of railway, in addition to tracing the older lines. Messrs. R. K Orr, G. Dowler, E. Scarlett. I.P.S. and D. C. McHenry, M.A., were appointed a committee on text books, and instructed to draft a resolution on the subject. The subject of "Discipline" was next presented in a most instructive address by the President, Mr. Geo. Dowler. He was ably supported by Geo. Kirk, H. M. Model School, Cobourg, who dwelt mainly on the effect of suspensions and expulsions at the Provincial Model Schools as compared with other modes of punishment adopted throughout the province. The Rev. T. Cullen, of Brighton, next offered an excellent address on the "Life and work of Egerton Ryerson D.D., LL. D." He was tendered the thanks of the association and requested to allow his address to be published. The following resolution of condolence, moved by Inspector Scarlett, seconded by Rev. T. Cullen, was passed by the association: "In view of the deep and wide spread gloom cast over this land by the demise of the Veteran Educator—Rev. Doctor Ryerson, who for nearly half a century stood at the helm of educational affairs of this province, be it resolved, that with earnest and affectionate sympathy we tenderly condole with those who were bound by the nearest and dearest ties to the deceased father of our Educational System, and sincerely commend them to the keeping of Him, who looks with a pitying eye upon a household deprived of its earthly head." Resolved: "that in our sorrow for the loss of him of happy and of honored memory, we find consolation in the belief that it is well with him we mourn". Resolved "that as a token of respect and veneration for the Christian character of a great and good man gone to his rest, a copy of this heartfelt testimonial of our sympathy and sorrow be forwarded to the widow and family of our departed chieftain." "Home Work" was presented in an admirable address by D. C. McHenry' M.A., who was tendered a vote of thanks and requested to furnish a copy of his address for publication. Mr. E. Cochrane, Deputy-Reeve of Cramahe referred to the multiplicity of authorized text books, encouraged more of sympathy between parents and teachers, and spoke in praise of the present method of teaching as compared with the old method Mr. W. J. Gage next addressed the teachers and submitted his excellent series of readers for the approval of the association. A public lecture was delivered in Proctor's Hall at 8 p.m., by Rev. R. H. Harris of Brighton: Subject—"Relation of P. S. Teachers to the State," He claimed that the future of this country depends largely on the character of its teachers, and advocated a more general and more thorough education of the people on the broad basis of christianity as the best means of building up and strengthening the state. *Second Day's Proceedings:*—On motion of Mr. E. Hayward seconded by Mr. D. I. Johnston a resolution was passed requesting the Inspector to take such steps as the law will allow and may seem to himself advisable, to compel the attendance of teachers of this county at the association meetings. The committee on text books reported as follows:—"In our opinion, our authorized geographies should be, revised in order, not only that much which they do not contain, (our Canadian Railways, for example,) may be inserted; but also in order to afford an opportunity for the correction of numerous errors to be found in the map and letter-press. We are also of opinion that our present readers should be superseded by a new series at as early a date as possible. Having carefully examined those published by Messrs. Gage & Co., we would heartily recommend their authorization, and their general introduction into the schools of our county—believing that this excellent series fully meets our requirements. This report was adopted. "Practical Arithmetic" was introduced in an excellent paper by Mr. D. I. Johnston. The "Question Drawer" was opened by W. S. Ellis, B.A., B. Sc. He discouraged the practice of handing in questions of little general interest, involving lengthy mathematical solutions. Mr. Geo. Kirk disposed of the questions on grammar. Dr. McLellan was requested to continue the subject of Arithmetic. He spoke for a short time on the importance of arithmetic as a means of intellectual development. Mr. J. W. Black gave notice of a motion to deny the privilege of membership in this association to any person convicted of supplanting another teacher or aiding, abetting, or in any way countenancing the same. At this stage in the proceedings a delegation from the Brighton Board of Education was received who presented the association with an "Address of Welcome." This act of courtesy on the part of the Brighton Board, on behalf of the Brighton people, was highly appreciated and duly recognized by the association. Dr. McLellan again took up arithmetic and advocated greater thoroughness in the elementary teaching of the subject. Teachers were laboring at a great disadvantage in the lack of school apparatus. The speaker deplored the miserable penuriousness of the people of this country in the matter of providing suitable objects etc., for the benefit of the children. He also illustrated a system of teaching elementary arithmetic which has recently been adopted in many parts of the United States. This system cannot fail to meet the approval of the practical teacher. He strongly advocated the unitary method. A cordial vote of thanks was tendered the Doctor for his elegant address. "Business Papers" was presented by Mr. J. W. Johnson, President of Ontario Commercial College Belleville. Mr. Johnson displayed a genuine teacher's tact in presenting his subject. This free discussion of Business Papers was one of the interesting features of the associaiion. The speaker was tendered a cordial vote of thanks for his excellent address. Dr. McLellan next addressed a mixed audience of teachers and citizens on National Education. It was a characteristic address of thrilling power and eloquence demanding, as the greatest boon to the country, the higher education of the people. He was tendered a hearty vote of thanks. The next meeting of the association will take place in October next.

PRINCE EDWARD.—The semi-annual convention of the Prince Edward Teacher's Association was held on Friday and Saturday, 12th and 13th May. The chair was occupied by the President, S. B. Nethery, who opened the proceedings with prayer. Under the head of routine business, the names of G. D. Platt and R. Dobson were added to the executive committee. R. B. Mastin was elected secretary of the association in the place of T. F. Spafford, who was absent. The subject of Promotion Examinations was next considered and a number of suggestions made for their improvement. The attention of the convention was also called to the small number of school libraries in the county, and a resolution was adopted urging teachers to use their influence with trustees to have new ones established. J. Kinney next explained his system of marking the attendance, recitations and conduct of pupils, and was succeeded by Mrs. R. W. Murray, who read an interesting description of the Institute for the Blind, at Brantford, and the system of instruction adopted therein. Specimens of some of the appliances used in teaching, were also exhibited. A cordial vote of thanks was given Mrs. Murray by the convention. R. Dobson, B.A., then discussed Moods in Grammar, at considerable length, after which Miss Fanny Gillespie read in a fine style a poem by Will Carleton, and the convention adjourned. In the evening G. W. Ross, M.P., delivered his lecture on Intellectual Forces, to a fair audience notwithstanding the very unfavorable weather. The lecture was one of great value to teachers and was highly appreciated by those who were privileged to hear it. A hearty vote of thanks to the lecturer was moved by R. Dobson, B.A., seconded by Rev. J. F. German, M. A., and unanimously adopted. On Saturday. How to teach History was first explained by W. R. Brown after which Mr. Ross discussed at considerable length, and in a telling and popular manner the subject of School Management. The election of a delegate to the Provincial Convention was next proceeded with, when the president, Mr. S B. Nethery, was unanimously elected. Reading was next discussed by G. W. Ross, M.P., at some length, when some useful and practical hints were thrown out which should be profitable to the teachers present. The following resolutions were then read and unanimously adopted by the convention:—moved by W. R. Brown seconded by J. H. Forshea, and:—Resolved that in the opinion of this convention Gage's series of school readers are very much superior to our present series, and that the teachers of this county would approve of the introduction of them in their various schools. On motion the convention then adjourned.—President, S. B. NETHERY Secretary, R. B. MASTIN.

WENTWORTH.—The regular half-yearly meeting of the Wentworth Teachers' Association took place in the Court House, Hamilton, on the 12th and 13th of May. Owing to the severity of the storm which raged on the first of these days over the whole of the district the attendance was at no time very large and on the first day it was very slim indeed. In consequence of this untoward incident the proceedings were not as interesting as they usually are with this association. On the evening of Friday, the 12th, Prof. Meeke of Chicago gave a varied and quite successful literary entertainment at the Court House which was fairly attended by the public. Friday morning was devoted to routine business, the subject of "Corporal Punisment" being dropped from the programme on account of the absence of the person who was expected to take it up. The election of officers was the chief business of the afternoon, Mr. Maclean of Dundas taking the place of W. H. Ballard, M.A., as president for the ensuing year. On Saturday morning Mr. J. H. Smith, inspector for the county, explained his method of teaching primary arithmetic with the aid of the numerical frame. C. Robertson, M.A., gave a brief address on "Parsing" in which he criticised the indictment brought by Richard Grant White against formal grammar. Mr. Robertson himself advocated the relegation of formal grammar to a late period in the pupil's course but would not deprive it altogether of a place in school. Geo. A. Chase, M.A., then read a very interesting and practical paper on "English Literature in the Public School." He advocated a complete revolution in the present methods of teaching English and the use, for this purpose, of complete literary productions instead of mere fragments. Mr. Chase received a hearty vote of thanks for his valuable paper but did not feel disposed to comply with the request of the association to allow it to be published. In the course of the brief discussion which followed W. Houston, M.A., expressed his cordial concurrence in the views of Messrs. Robertson and Chase about the expediency of having less of formal grammar taught in schools, and more of English literature.

DUFFERIN.—The meeting of the Dufferin Teachers' Association which took place in Shelburne on Thursday and Friday May 25th and 26th, was the most successful one ever held in the county. All the teachers with a few exceptions were present. A number of trustees from various parts of the county and many friends of education, conspicuous among whom were two ministers and several members of the County Council including the warden, Mr. Colwell Graham, honored the meeting with their presence. In the absence of the president, A. S. Steele, B.A., the Vice-President, Mr. R. L. Mortimer occupied the chair. The following is the programme:—Agriculture in Schools, by D. Stewart; Grammar in Schools, by Thomas Allan; a class in Geography taught by Wm. Gray; Music by R. H. McMaster; Phonic Lesson on Meiklejohn wordbuilder to a first class, by Geo. Suttie; Uniform Promotion Examinations, by Inspector Gordon; Object Lessons, by S. S. McCormack; a Third Class Reading lesson, "The Miser Punished," by W. Lyon Mackenzie; Writing, by W. A. McLim; Education in General, by Jas. Ferrie. All these subjects elicited lively but friendly discussions. On Thursday afternoon Mr. David Boyle and Mr W. J. Gage, gave half-hour addresses, the former advocating the Royal Canadian Series of Readers now in course of preparation and the latter advocating the Meiklejohn Readers. A committee was named to consider a change in our series of Readers and the following is their report which was voted on by the convention and carried, about four to one:—'We consider the Meiklejohn Readers the best series of reading books yet published in Canada and would recommend them to the Minister of Education with a view to their authorization in order that they may be used in our schools as we consider them much superior to the reading books now in use.' *Committee*: N. Gordon, P. S. I., D. Stewart, A. L. McIntyre, Wm. A. McLim. On Thursday evening Miss Lewis, of the Toronto School of Elocution, gave an entertainment of readings in the M. E. Church, the readings being interspersed by music under the able management of Mr. Sleightholm. Miss. Lewis also addressed the convention on the subject of Elocution and in the course of her remarks paid a high tribute of praise to the Meiklejohn Readers as being the best ad pted for teaching she had ever seen. The convention passed a unanimous resolution giving the subject of Uniform Promotion Examinations, a six months' hoist. On the last day of the convention, the Town Council of Shelburne gave a free dinner to the teachers at the Mansion House, after which speeches were delivered by Messrs. Wm. Jelly, M. P. P., N. Gordon, P. S. I., F. G. Dunbar, J. P., D. Stewart, J. P. and A. L. McIntyre.

REVIEWS.

THE PUBLIC SCHOOL—*New England Publishing Co., Boston, Mass.* It might have been thought that with such publications as "Education" "The Journal of Education," and "The Primary Teacher," issued by this enterprising company, that there was scarcely room for another bearing upon the same topics. However we find from the paper before us, which is the first number of a monthly journal devoted to the elucidation of the principles and methods of the "New Education," that there was still much scope not embraced by the other periodicals, and a fresh development that may be secured and utilized for the teacher's benefit. The articles, which are well written, are from practical educationists, and the odor which pervades them savors more of the schoolroom or institute than of the editor's sanctum. Teachers discuss with teachers the live matters that come before them in their work, and in this way much more practical, genuine good may be done than by the theorizing that too often fills up the teacher's magazine. The paper is edited by the Hon. T. W. Bicknell, whose world-wide reputation as a scholar is in itself sufficient to guarantee its excellence. The dollar per annum for which the journal is sold could not be spent to better advantage by a teacher, especially a young teacher, as the beneficial effects resulting from its study would be of incalculable service to him in his daily work.

THE ORIGINAL CHATTERBOX—*Estes and Lauriat, Boston, Mass.* We have at various times urged the advisability of supplying children who are learning to read with supplementary reading books. The young mind, as the beauties of language are unfolded to it, seems to grasp at everything that comes in its way to satisfy the newly acquired appetite, and the temptation to become morally and intellectually poisoned by vicious, trashy stories is often very strong. We therefore commend very highly such publications as Chatterbox, as from the nature of the reading matter and illustrations, instruction in the most pleasing form is conveyed and a desire for healthy literature formed. The magazine is issued monthly, price $1.00 a year.

THE CENTURY—*Scribner's Monthly*—June.—To those few teachers who have not seen and read *The Century*, we cordially say: "Before the holidays subscribe for at least six months. The 24th volume began with May, and you will thus have three numbers in July to read as you are resting. Rest gives benefit in proportion to the joyousness of our spirits while we free from work. Go to some healthful quiet place for your rest, and take *The Century* to make you joyous, and the end of the vacation will find you strong and happy." The June number contains five illustrated articles: 'Around Cape Horn,' 'Opera in New York' (No. iv.), 'The Bee Pastures of California,' 'The Century Prizes for Wood Engraving,' and 'Marble Mining in Carrara.' The portrait of Cardinal Newman forms the frontispiece, and is one of the finest engravings ever issued. None of the nnmerous articles are of special interest, but they are all interesting. The editorial departments are full of information and practical suggestions. In 'Home and Society' there is a very valuable article on 'House Construction.' It is probably the most useful article in the Magazine. 'Bric-a-Brac,' is better than usual.

NEW BOOKS.

An Etymological Dictionary of the English Language. By Rev. Walter W. Skeat. *New York, MacMillan & Co.; Toronto, Willing & Williamson.*

The sources of English Words and Phases classified and arranged so as to facilitate the expression of ideas and assist in literary composition. By Peter Mark Roget, M.D., F.R.S. *New York and Chicago, John R. Anderson & Co.; Toronto, Willing & Williamson.*

A Compendious Dictionary of the French Language; adapted from the Dictionary of Alfred Elwall. By Gustave Masson. *New York, MacMillan & Co.; Toronto, Willing & Williamson.*

These volumes, each admirable of its kind, have been handed us as we go to press. A fuller notice of all of them, and especially of Skeat's Etymological Dictionary, which is one of the most valuable works on the English language, will appear next month.

MAGAZINES.

THE NORTH AMERICAN REVIEW.—The No. of this ably conducted monthly for May contains six articles, vigorously written by contributors most of whom are well known in the world of letters on interesting and important subjects. "Party Schisms and Future Problems" by Carl Schurz, opens with describing the faction quarrels which exist within the two great political parties of the United States and which are said to be fiercer than the contests between them, and proceeds to give an analytical representation of the present situation, not a foreshadowing of the future, nor a platform for it. "Days with Longfellow" by Samuel Ward, will be read with an absorbing interest by thousands in America and over all the world where the name of the great poet, one of the greatest of modern days, is known and whose "Psalm of Life," and that little gem "The Arrow and the Song" are, of themselves, sufficient to render his name immortal. "What does Revelation Reveal?" by Elizabeth Stuart Phelps, shows an active and inquring mind, but one that has not rested upon the Bible with simple and hearty faith. "The Navy" by Lieut-Commander *Henry H. Gorringe* undretakes to prove that an efficient naval force is essential to the welfare of the United States, that the vessels now on the navy list are useless for the operations of modern warfare, that the blame of this rests, not on Congress, but the system of naval administration and that the creation of an efficient naval force would be greatly to the advantage of the carrying trade of the States, and could be effected at a com aratively small outlay. W. H. Mallock furnishes Part I of "Conversations with a Solitary." And Gail Hamilton writes clearly and forcibly on "the spent bullet," showing that neither surgical science, theology nor law has gathered any laurels from the assassination of President Garfield, and that the only one who did so was the victim himself—the President, the politician and the statesman.

The June number of *The Atlantic Monthly* contains a fine steel portrait of the late Henry Wadsworth Longfellow, a poem, "Decoration Day," by him, a poem in memory of him by that wonderful septueganarian, Oliver Wendell Holmes, and an account of his life by O. B. Frothingham. Mr. Hardy contributes five additional chapters of "Two on a Tower;" Elizabeth Stuart Phelps, two of "Doctor Zay;" William Henry Bishop, three of "The House of a Merchant Prince;" and M. H. Catherwood, a complete short story, called "Serena." The fourth of the very interesting series of "Studies in the South" makes its appearance. The remaining contents are "Mrs. Centlivre," "The Poet's Birds," "The New Eastern Question," "The Night-moth's Comment," "The Rapid Progress of Communism," "Charles Darwin," "Alphonse Daudet," "The Contributors' Club," and "Books of the Month."

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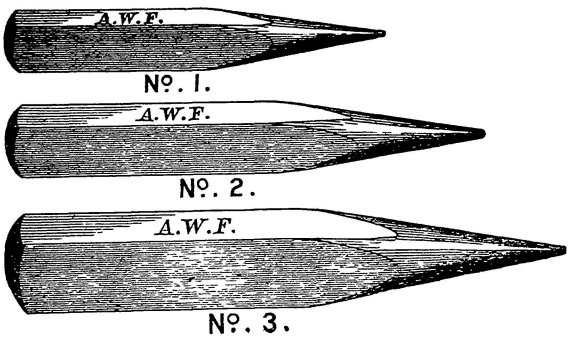

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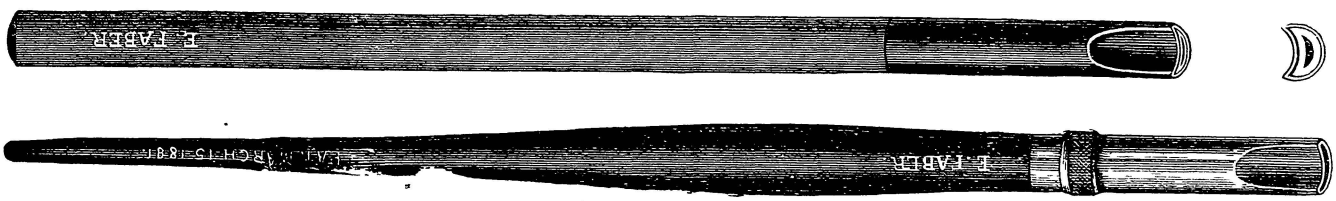

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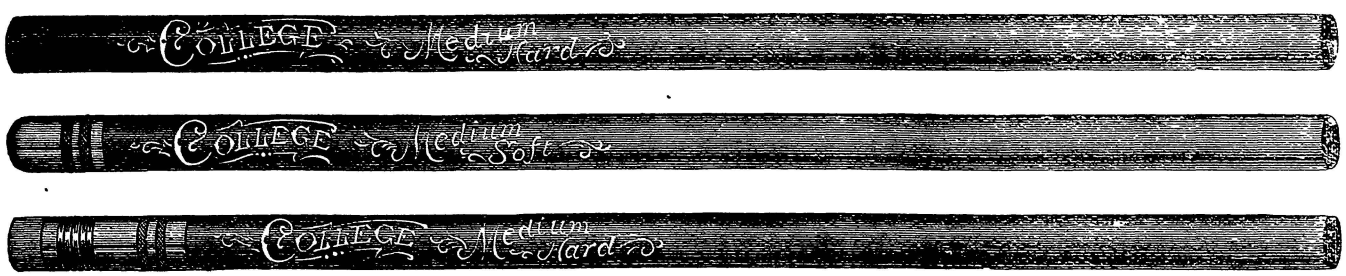

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A SPECIMEN RESOLUTION.

The following resolution, framed by a committee of the East Northumberland Teachers' Association and adopted by the Association in Convention assembled, will serve as a specimen of the endorsations won from practical teachers by the Readers:—

We are of opinion that our present readers should be superseded by a new series at as early a date as posible. Having carefully examined those published by Messrs. Gage & Co., we would heartily recommend their authorization and general introduction into the schools of this country, believing that this excellent series fully meets our requirements.

Signed, { D. C. McHenry, M.A., G. Dowler, Pres., R. K. Orr, B.A., E. Scarlett, I.P.S. } Members of Committee.

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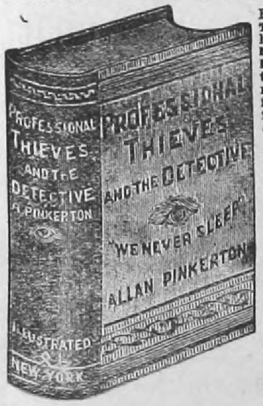

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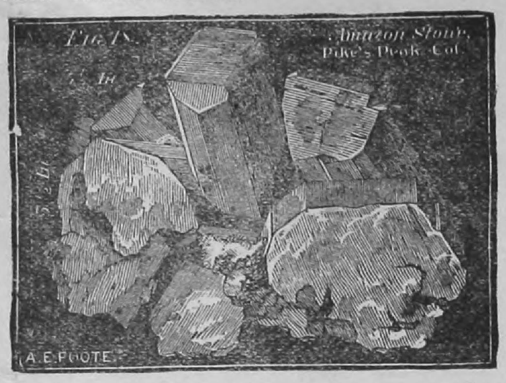

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CANADA SCHOOL JOURNAL HAS RECEIVED

An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Educati n, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Educatio , British Columbia.
Recommended by Chief Superintendent of Education, Mani oba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course unable to make any distinction in a list containing names from all parts of the United States and Canada.

TO OUR READERS.

In accordance with the custom now almost universally adopted by the publishers of educational journals in England and the United States, we propose to dispense altogether this year with the usual August number of the SCHOOL JOURNAL. With this arrangement, we feel sure, our readers will find no fault, more especially as we give them a double number for July. Teachers are naturally disposed to pay as little attention as possible to professional matters during the summer vacation, and we propose this year to assist them in their endeavour to forget for a little while that there are such things as schools, conventions, and text-books.

REMUNERATION OF COLLEGE PROFESSORS.

One of the difficulties in connection with collegiate management, and especially in connection with endowed institutions, is the difficulty of keeping the teaching abreast of the age. It is very apt to fall behind either in the subject matter of the prelections or in the methods of the lecturer. While some members of a college staff may be doing their utmost and doing good work, other members of it may be indolent, or incompetent, or both. There is no supervision over their work and in the nature of things there cannot be any. Each is a law unto himself and if he fails he must be left to be dealt with by the slow operation of public opinion which is never well informed of what goes on within academic walls.

One way of bringing pressure to bear on inefficient teachers and of applying the spur to indolent ones would be the general adoption of the practice of paying each professor in a college a certain fixed sum and supplementing this with all the fees paid by those who take his classes. The students are excellent judges of the merits of a lecturer and if a member of the staff were to fail in securing a favourable opinion his income would suffer accordingly. In every college there are certain options allowed and the student can therefore shape his course a good deal according to his inclinations.

We are not in a position to say how the professors generally are paid in Dalhousie College but we notice that in the case of Dr. Schurman, recently appointed to a chair in that institution, he is allowed a fixed salary of $2,000 a year, with class fees additional. If this is the system adopted in Dalhousie generally the management have set an example which ought to be generally followed.

PRIVATE AND PUBLIC SCHOOLS.

The Minister of Education has this year taken the important step of giving to Pickering College, a purely private school, the right to hold within its walls the ordinary high school entrance and intermediate examinations. It was only to be expected that a new departure of this kind would evoke some hostile criticism, but we feel confident that in the long run public opinion will abundantly endorse the action taken by Mr. Crooks. We would go further and express our earnest hope that other private schools and colleges will follow the example set them by the management of Pickering College and apply for the same privilege.

The apprehensions felt by those connected with the provincial high schools lest this recognition by the Department of the work done by private schools should affect public institutions injuriously, found expression at the teachers' convention held recently at Uxbridge, where a resolution was unanimously adopted disapproving of the Minister's action. That resolution states (1) that what has been done "is a departure from the spirit of our educational system and the manner in which it has hitherto been interpreted,' and (2) that it is likely to lead to great abuses, to injure the reputation and finances of the national schools, and "to introduce into our school system other questions than education." It is difficult to gather from this resolution the precise nature of the evils apprehended. That the departure is a new one is not a sufficient ground on which to condemn it, for all progress is the result of new departures. Abuses in connection with these examinations come to light from time to time when they are held in high school buildings, and the Minister will of course have precisely the same kind of control over them in private schools as he has in public schools. Whether the examination will be kept free from abuses or not depends almost entirely on the presiding examiner, and as the building in which the examination is held is a mere incident of the situation, the fear of abuses must be considered as without sufficient grounds to justify it.

It is easy to understand why an enterprising principal of a private school should want to have the departmental papers

sent to his institution. They will be a means of enabling him to satisfy both his pupils and his employers as to the character of the work he is doing, and they will tend to broaden the educational horizon of all who are engaged in it. If the principal of Pickering College will only apply to the universities which have local examinations for a similar privilege he will set an excellent example. On the other hand it is only fair that if the Education Department takes cognizance of such schools by sending them papers and appointing presiding examiners, it should also ask them to submit to departmental inspection. Well conducted schools should welcome such a change for other reasons, and more especially because it would be a means of enabling the public to distinguish between good institutions and shams.

DEPARTMENTAL EXAMINATIONS.

At the recent teachers' convention for North Simcoe the subject of departmental examinations came up for discussion in connection with an able address by Mr. Spotton, headmaster of the Barrie high school. A committee was appointed to consider the question and after deliberation it reported strongly in favour of the proposal to separate the intermediate from the public school teachers' examination and to restore the intermediate to its original position as a a promotion examination.

Those who have followed the course of educational changes during the past few years will remember that the combination of the two examinations above referred to was an experiment and that it has never since been regarded as other than a doubtful one. The opinion of practical men everywhere is now against the arrangement being continued, and, as usual, the Minister of Education is found quite abreast of public opinion in the matter. In the course of his address at the closing of the Ottawa model school a few days ago he announced that the two examinations would hereafter be separate, an announcement which will be universally satisfactory to teachers.

The educational authorities of Manitoba have placed the new provincial normal school under the immediate supervision of Mr. J. B. Somerset, the inspector of schools for the city of Winnipeg. This is a judicious arrangement especially where, as in this case, the inspector is known to be thoroughly experienced and efficient. It brings the normal school into direct contact with the public school system and keeps up between them an intimate relation which cannot fail to have an excellent effect on both. We would in this connection, call attention to the advertisement in this number of the JOURNAL for a headmaster for the new normal school in Winnipeg. What is wanted is a teacher with the highest professional attainments rather than one with a high reputation for classical scholarship. If both qualifications can be secured in one person so much the better; but as the primary function of the school is to train teachers, not to produce scholars, professional efficiency should be made an indispensable condition and should never be subordinated to mere literary or scientific attainments.

HIGH SCHOOL INSPECTION.

The article on this topic, in another part of this issue, should be read by all who are interested in keeping up the status of secondary schools. Hasty inspection must needs be cursory, and cursory inspection is of very little value. It is unnecessary to dwell on an aspect of the case which has been so well discussed by the writer, and which will appeal strongly to every teacher. On another point "Head Master" might have said even more than he has done and yet kept studiously moderate. The normal schools of Ontario stand in need of departmental supervision as well as the high schools, and the task of inspecting them falls naturally and properly to the high school inspectors. As a matter of fact one of these officers has during the past few weeks spent a good deal of his time at this very work and this has been done at the expense of high school supervision. The work of high school inspection proper would, if thoroughly done, occupy more than the time of two inspectors, and when to this work is added their *ex-officio* duties as members of the Central Committee of the Department and the work of normal school supervision it is clear that the question of appointing a third inspector cannot be very long postponed without injury to the cause of education.

The announcement has recently been made that Dr. Schurman, who has for some time held a chair in Acadia College, Nova Scotia, has accepted a new chair endowed by Mr. George Munro in Dalhousie College, Halifax. His subjects will be English literature and metaphysics, two fields of inquiry in which he is especially proficient, and which are understood to be congenial to his taste. To all appearance Dr. Schurman has a brilliant career before him. He is a native of Prince Edward Island and is only some 28 years of age. While a student of Acadia College he took the Gilchrist scholarship in the University of London, and spent the next few years in Britain and Germany, graduating with distinction in both countries. Since his return to his native country, he has been engaged in teaching in Acadia and now transfers his services to a somewhat wider field. It is alike gratifying to record the liberality of Mr. Munro, a Canadian who has made a fortune by publishing in New York, and the appointment of Dr. Schurman, a Canadian who has superadded to his home training the best culture of London and Berlin.

A movement has been set on foot in the United States to provide by subscription a memorial for the poet Longfellow. The original idea was a one-dollar list, but wealthy men are contributing larger sums and it is therefore quite likely that a considerable amount will be realized. It is to be hoped that, as he has already reared for himself a "monument more enduring than brass," the bulk of the money raised will be devoted to the foundation of some chair or institution for the instruction of the people—a project in which he would himself, if alive, take a deep interest. A statue, whether in bronze or marble, is evanescent, but the name of Longfellow attached to, say, a chair of literature in Harvard would be enduring.

In the list of contributors to the *American Journal of Mathematics*, edited by Prof. Sylvester of John Hopkins University, appear the names of Prof. Loudon of University College and J. E. Glashan, inspector of public schools for the city of Ottawa. Any Canadian may well feel honoured by being recognized in this way.

The many friends of Mr. J. B. Somerset in Ontario will learn with pleasure that he is winning golden opinions from all parties in Winnipeg. Most satisfactory proof of the good-will of the school board has been afforded in the shape of a considerable increase of salary, and at a recent meeting of the city teachers a resolution was unanimously carried approving of Mr. Somerset's efforts to put the schools in as thorough a state of efficiency as possible, expressing their high appreciation of him as a public officer and a gentleman, and congratulating the school authorities on having secured his services.

In the forty-fifth annual report of the Massachusetts Board of Education there appears a letter from Dr. McLellan, high school inspector for Ontario, giving a brief description of the the system of public school supervision in vogue in this province. The letter was written at the request of the secretary of the Board, who describes it as an "interesting and clear statement," and adds :—

"I gladly publish this paper in connection with the annual report of the Board of Education, hoping that at no distant day there will be established an equally complete and efficient system of school supervision in this Commonwealth."

Geographical Notes.

THE SUB-DIVISIONS OF ONTARIO.

The province of Ontario is subdivided by law in different ways for different purposes, and as this state of affairs tends to create a certain amount of confusion we propose to collect in one place from the various Acts of Parliament such information as will be most likely to give teachers a tolerably clear idea of the internal political geography of this province. There is the more need for so doing from the fact that in some of the maps published for use in schools mere electoral divisions are represented as counties while real county municipalities are not clearly indicated.

The division of each province into districts for the election of members of the House of Commons is under the control of the Dominion Parliament. The division into districts for the election of members of a Provincial Assembly is under the control of the Provincial Legislature. As there is of necessity a revision of the electoral districts after each decennial census for Dominion purposes, and as the Legislature of Ontario has not adopted the electoral districts as arranged by the Dominion Parliament, it is not surprising that the existence of two sets of districts within the same area should lead to confusion, especially as there are districts for municipal and judicial purposes which coincide with neither of the others. It is not proposed to give here any account of electoral districts as they are liable to frequent changes; it is of more importance to know how the province is divided into municipal and judicial districts.

The following is a complete list of the county municipalities with their county towns :—

Brant—Brantford	
Bruce—Walkerton	
Carleton—Ottawa	
Dufferin—Orangeville	
Lennox and Addington	Napanee
Lincoln—St Catherines	
Middlesex—London	
Dundas, Stormont and Glengarry	Cornwall
Durham and Northumberland	Cobourg
Elgin—St. Thomas	
Essex—Sandwich	
Frontenac—Kingston	
Grey—Owen Sound	
Haldimand—Cayuga	
Halton—Milton	
Hastings—Belleville	
Huron—Goderich	
Kent—Chatham	
Lambton—Sarnia	
Lanark—Perth	
Leeds and Grenville	Brockville
Norfolk—Simcoe	
Ontario—Whitby	
Oxford—Woodstock	
Peel—Brampton	
Perth—Stratford	
Peterborough—Peterborough	
Prescott and Russell	L'Orignal
Prince Edward—Picton	
Renfrew—Pembroke	
Simcoe—Barrie	
Victoria—Lindsay	
Waterloo—Berlin	
Welland—Welland	
Wellington—Guelph	
Wentworth—Hamilton	
York—Toronto	

The following county towns are cities, each city being for judicial purposes part of the county in which it is situated, though for municipal purposes it is separate :—

Toronto	Kingston
Hamilton	Ottawa
London	Brantford
Guelph	St.Catherines
St. Thomas	Belleville.

Several towns, besides these cities are separated for municipal purposes from the counties in which they are geographically located.

There is one provisional county, Haliburton, which is set apart for municipal and school, as well as judicial purposes. It embraces 23 townships immediately in rear of, and almost coterminous with the northern limit of the county of Peterborough. The municipal capital is Minden.

Haliburton differs from the so-called "districts" in having a county organization, though only a provisional one. The highest municipal unit throughout the whole of the districts of Muskoka, Parry Sound, Nipissing, Algoma, and Thunder Bay is the township or village. The township councils in these districts are clothed with special powers and discharge some of the functions that in other parts of the province are performed by county councils.

The territorial district of Muskoka extends from the Severn on the south to the middle of Lakes Joseph and Rosseau on the north, and from the Georgian Bay on the west to Haliburton on the east. Its capital is Bracebridge.

The district of Parry Sound has for its eastern limit a continuation of the eastern limit of Muskoka to the east end of Lake Nipissing, and it extends northward to that lake and French River. Parry Sound is its capital.

The district of Nipissing extends eastward from Parry Sound till it abuts on the county of Renfrew and the upper Ottawa, and includes all the territory north of Lake Nipissing and French River and east of the meridian of the mouth of that river.

The Thunder Bay district includes the townships lying immediately around Thunder Bay and the capital is Prince Arthur's Landing.

The district of Algoma embraces for all except certain specified purposes the smaller district of Thunder Bay, and besides it, all that part of the province lying west of the meridian of the mouth of French River, including the Manitoulin, St. Joseph, and other islands not attached to counties previously organized. The capital of this district is Sault Ste. Marie, where the judge of the whole district resides.

Besides the judge of the district of Algoma there are Government stipendiary magistrates with extensive civil and criminal jurisdiction at the following points :—

Disputed Territory west of Lake Superior	Rat Portage
Hudson Bay District	Moose Factory
Thunder " "	P. A. Landing
Parry Sound "	Parry Sound
Muskoka "	Bracebridge
Haliburton "	Minden

Stipendiary magistrates in these districts are empowered to hold division courts and exercise some other functions that in older parts of the province devolve on county judges. Matters beyond their jurisdiction are settled by the judge of Algoma, by the county court judge of Victoria to which Haliburton is for judicial purposes attached, and by the judge of Simcoe to which the districts of Muskoka and Parry Sound are attached in the same way.

MISCELLANEOUS.

A NEW GEOGRAPHICAL TERM.—BY A. H. O.

Many of the readers of the JOURNAL have no doubt felt the want of a name for one of the four classes into which lakes have been divided. We have names for (1) lakes which have an inlet but no outlet, viz., "Lakes of reception"; for (2) those which have an outlet but no inlet, viz., "Lakes of emission"; and for (3) those which have both influents and effluents, viz., "Lakes of transmission." But, for lakes which have neither an inlet nor an outlet, we have, so far as I know, no name. I suggest to my fellow-teachers to call this class, "Lakes of inclusion." The names of the first three classes denote the offices which they perform. The name proposed for the fourth class does the same for it. Lakes of the first class *receive* water conveyed to them; those of the second *emit* water from their own supplies; those of the third receive and emit, *i.e.*, *transmit* water, which has been conveyed to them; those of the fourth class simply *inclose* the water within their borders.

Mathematical Department.

ELEMENTARY ARITHMETIC.

During the past months we have devoted a good deal of space to intermediate and university work. The struggle is over for another year with the numerous readers of this department who have been actively engaged in preparing for the various examinations. The die is cast; and before our next number reaches them we trust that most of them will be rejoicing in their success.

In the present number we propose to hold a quiet chat with that large circle of our friends who are for many months of the year teaching elementary arithmetic. It is almost impossible now to advance anything strikingly original on this topic; and were it possible it would not probably be so useful as the repetition of important matters already well established. Leaving all prejudices aside, and looking at the matter from a practical point of view, can any one imagine why the multiplication table should be taught to 12 times 12 and there stop "forever and forever"? Children in the second reader learn it thus far. Is it not alien to the whole spirit of our system to *stop* there, is it not absurd to think of a merchant fumbling for his pencil before he can find the price of 19lbs. of butter at 17 cents a pound? Experience generally teaches business men the necessity of knowing the table up to 16 or 20 times at the very least. The pupils of the third class could very easily learn the table up to the end of 16 times by spending five minutes only, say twice a week during a single term, especially if they were required to apply the table as soon as learned to their ordinary work, and thus do away with the clumsiness of multiplying by 13 and higher numbers with *two lines* of figures instead of one line. It is equally easy to push the table on to 25 times 25 in the fourth class. As a preparation for the duties of after life, for the every-day work of the bank, the farm, the shop, the school, we ask deliberately what other piece of information acquired in the same time can be so convenient and so serviceable to the possessor? The first requisite of success in rapid calculation is, we believe, efficient drill in mental problems. Now the extended addition table and its counterpart the extended multiplication table furnish matter for this drill at once the most elementary, the most natural, and by far the most practically useful to the pupil. Understanding division to be the reverse of multiplication, all our preceding remarks apply to division. It saves vast amounts of time and of drudgery to the more advanced pupil to be able to multiply, divide, or cancel with factors as high as 23 or 25.

In this connection we very naturally insist on the pupil's learning at the earliest moment to test his multiplication and division by "casting out nines." It requires but a lesson or two to make pupils so familiar with this method that long lines either of multiplication or division can be satisfactorily tested in a few seconds, and the certainty thus gained is a powerful stimulus to further progress. Pupils in the second book learn to apply the test in one short lesson. Why should they not learn it as soon as they have fairly understood the four simple rules? Are we so extremely sensitive on that bugbear, CRAM, that we are afraid to communicate the most useful information simply because the pupil cannot yet understand the reasons of the process? If so, let us never more teach subtraction until our beloved little protegés can wholly comprehend the reason for "carrying." Is it not patent that in very many cases we must first teach the HOW and then the WHY, and that this is not only the simplest but also in such cases the shortest plan. In our humble opinion it is injudicious to attempt to carry out the *method of discovery* in every particular case even in mathematics. The *method of instruction* has its appropriate sphere.

Speaking of "carrying" in subtraction, reminds us that we have seen the most satisfactory results obtained by teaching subtraction as a certain kind of addition, so that the pupil is not brought into contact with any new principle of "carrying" different from what he has already learned in addition. Thus, instead of saying 5 from 7 leaves 2, it is possible to state the question, 5 and how much makes 7? In the case of long lines of subtraction this way of putting it avoids the learning of a new rule; subtraction can be done as soon as addition is learned.

Example:

```
 6325464
  895493
 5429971
```

3 and ? *one* are 4. 9 and ? *seven* are 16; 5 and ? *nine* are 14; 6 and ? *nine* are 15; 10 and ? *two* are 12; 9 and ? *four* are 13; 1 and ? *five* are 6. The ? indicates the mental problem to be solved. Let the pupil prove the operation by addition, 3 and 1 are 4, 9 and 7 are 16, 5 and 9 are 14, 6 and 9 are 15, &c., and no mystery hangs over the operation, which is perhaps more than can be asserted of the common plan of "borrowing and paying back again." This method also enables the pupil to do long division very rapidly and with one half the usual figures, by combining multiplication and division.

Example:

```
4064)56438971(13887
     15798
      36069
       35577
        30651
         2203
```

We say once 4 and ? *nine* are 13 (one to carry, 9 set down) once 6 are 7 and ? *seven* are 14; once 0 is 1 and ? *five* are 6; once 4 and ? *one* are 5. Bring down 8. Three times 4 are 12 and ? *six* are 18; three times 6 are 18 and *zero* are 19; three times 0 is 1 and ? *six* are 7; three times 4 are 12 and *three* are 15. Bring down 9, &c. Pupils learn this plan in one lesson, and it conduces to accuracy and rapidity as experience abundantly proves. It will be observed that the operation admits of being tested by "casting out nines" just as well as when the subtrahends are written down.

We now offer a few hints on the tables of weights and measures. The most obvious remark of any business man on opening a common school arithmetic would be, that a large part of what is usually given under this head is of no practical use in the every-day business of life, and ought at least to be deferred to the later stages. We are apt to forget that less than one half of our Canadian boys and girls ever get beyond the third book. Let us teach to this vast multitude who are destined to receive no further school advantages, all the most USEFUL things we can, that is as few *useless* things as possible. With such a book as Kirkland and Scott's elementary arithmetic in in their hands junior teachers are sure to succeed if they earnestly realize what they should aim at, viz. to teach well the most simple and useful parts of arithmetic to this majority of our children before their school days are finished forever, say at the end of the third class. In long measure, what is the utility of barley corns, furlongs, leagues, &c.? 12 inches=1 foot; 3 feet=1yard; 1760 yards=1mile, is about all that is required in practical life. Again, in square measure it is practically most useful to know that 4840 square yards

=1 square acre, and 1210=a rood, and 160 square rods=1 acre. In most of our text-books we find in the tables a collection of old fossil remains that have drifted down to us from the age of kilderkins, chaldrons, fothers, angels, etc. They seem to us wholly out of place in our junior classes, having no bearing on actual business as now conducted, and serving to load the "mighty ten years" with old rubbish instead of precious seed.

The use of factoring in helping to shorten the mechanical work of arithmetic can scarcely be exaggerated, and the sooner young pupils can be taught to apply it the better. Thus, in the following question a little factoring actually abolishes the whole of the mechanical work:—A speculator borrowed $5000, and immediately invested it in land. Six months afterwards he sold the land for $7500 on 12 months credit with interest. Find the speculator's profit, supposing he pays back the $5000 in 18 months after borrowing it, and taking all moneys worth 6%.

Sum received for land=$7500 (1·06)
" paid back =$5000 (1·09)

i. e. profit=$7500 (1·06) − 5000 (1·09)
=7500 (1·06)—5000 (1·06) − 5000(·03)
=2500 (1·06)—2500 (·06)=$2500

The following illustrates a similar useful application of factoring. Find the area of a triangle whose sides are 760, 950, and 570. Applying the ordinary rule.

$$\text{area} = \sqrt{(1140 \times 380 \times 190 \times 570)}$$
$$= 100\sqrt{(114 \times 38 \times 19 \times 57)}$$
$$= 19 \times 1900\sqrt{(6 \times 2 \times 1 \times 3)}$$
$$= 19 \times 1900 \times 6 = \&c.$$

Closely connected with the preceding are the contracted methods of multiplication and division of decimals, and the method of dividing by successive factors and writing down the correct remainder.

We have often heard complaints against the ordinary rule for contracted multiplication, inasmuch as a little uncertainty occasionally arises as to where the decimal point should be placed. The following obviates that difficulty and can be applied by young pupils. First make the multiplier a whole number by removing the decimal point to the right. Remove the decimal point of the multiplicand as many places to the left, putting in cyphers if necessary. Count off towards the right from the decimal point of this multiplicand as many figures as are required to be correct in the product. Under the last of these figures place the first figure of the multiplier reversed. Now multiply each figure into the one immediately over it, in the ordinary way, carrying as usual. Lastly point off as many figures as there are from the decimal point of the multiplicand to the first figure of the multiplier. This is only a modification of the common rule.

Example: simplify $\dfrac{399\cdot075 \times 5\cdot4166}{105\cdot416}$

Using both contracted multiplication and division the operation stands

```
        ·03990750
            66145
        ---------
        19953750
         1596300
           39907
           23945
            2394
105416)2161629·6(20·505
        533096
          6016
```

After multiplication the decimal point stands between the 61 and 62, but in the division we make the divisor a whole number, and hence change the point in the dividend over to the right three places. In the division multiply and subtract at once. When the quotient is 0 bring down the 6 as well as the 9.

It should be borne in mind that circulating decimals can be conveniently managed either in division or multiplication without the trouble of reducing them to common fractions and then back again, if we carry out the circle for say five or seven figures and then apply the contracted methods. If we do not get the precise result we can generally see what the true circle is in the product or in the quotient as the case may be. Will some of our friends experiment on a few decimals and confirm what we have said?

Before we close we wish to refer to the most important point we intend to notice namely, *the use of the simple arithmetical equation.* From the day boys and girls begin to learn written arithmetic it is absolutely necessary to compel them to set down the theory of their operations before they begin the mechanical work required to find the answer. Perhaps no single omission does so much harm to the learner as the lack of proper training in the art of *indicating* the work to be done before attempting to execute it. Full and systematic solutions dispel a great part of the mystery which hangs about the subject. In this connection the application of the axioms to the arithmetical equation are of prime importance. Very often a little skill in factoring and in using the equation shorten the work by more than one half. The two examples given here will illustrate the preceding remarks. A commission merchant sold a consignment of goods on 3% commission, and was instructed to invest the proceeds in other goods on 2% commission, both commissions being deducted in advance and amounting to $265. Find the proceeds of the consignment and the value of the goods.

proceeds=commission + goods

Now 1st com. =3% of proceeds=3% com. +3% goods
2nd com. = 2% goods

i. e. whole commission =3% com. +5% goods

add 2% com. to each of these equals, and we have

102% com. =5% com. +5% goods=5% proceeds,

i. e. $\frac{102}{100}$ of $265= $\frac{5}{100}$ of proceeds. Multiply both sides by 20

and $\frac{102 \times 265}{100} \times 20$=proceeds=$5406

∴ goods=5406 − 265=$5141.

By selling out £4500 in the India 5% stock @ 112½, and investing the proceeds in Egyptian 7% stock, a person finds his income increased by £168 15s. What is the price of the latter stock?

First income=45 × 5

2nd " $= \dfrac{45 \times 112\frac{1}{2}}{\text{price}} \times 7$

Hence

$$\frac{45 \times 112\frac{1}{2} \times 7}{\text{price}} - 45 \times 5 = 168\tfrac{3}{4}$$

add 45 × 5 to both the equals, and

$$\frac{45 \times 112\frac{1}{2} \times 7}{\text{price}} = 168\tfrac{3}{4} + 225 = \frac{1575}{4}$$

Divide both numerators by 45 × 7, and we get

$\dfrac{112\frac{1}{2}}{\text{price}} = \dfrac{5}{4}$. Multiply both sides by 4 price

450=5 price

∴ price=90.

We feel sure from careful observation that it pays handsomely in the end to accustom learners to put down the *whole* process, and to use all the symbols with a precise meaning. Here is the proper place to introduce a few words of caution on the *abuse of the equation*, to show the absurdity, or, at least, the bad taste of writing such expressions as

$\frac{5}{16}$=$80 ∴ 1=256 &c.

instead of

$\frac{5}{16}$ amt. =$80 ∴ amt. =$265, &c.

However we must cease for the present. We wish all our readers much enjoyment of the long holidays, and if we have opened a small chink by our previous rambling remarks, reflection and experience will no doubt reveal the extensive landscape that lies beyond.

Several answers to correspondents are held over till next issue.

Special Articles.

PHYSICAL DEVELOPMENT AND SCHOOL WORK.

(From a paper read by C. D Curry, M.A., M.D., before the East Victoria Association.)

[The former part of Dr. Curry's paper was devoted to showing the relation between the physical development of children on the one hand and good food, suitable clothing, pure air and exercise on the other. The latter part which is given below deals more particularly with school-work.—Ed.]

We now enter upon the second and more important portion of our subject, viz: the influence of school work upon development. Heretofore we have taken no notice of the influence of the brain and of intellectual exertion on the growth of the body. The brain as

you are aware is the seat of the nervous system. To it is entrusted the guardianship and direction of all the processes of life whether the involuntary ones—such as those of breathing—the action of the heart, or the voluntary ones, that is those controlled by the will. It may be considered as a central telegraph office over whose wires the nervous messages are sent to and received from all parts of the body. More important than this, it is also the organ of thought and the seat of our intellectual life. It grows and is developed with the body and partakes of all its changes, and as in childhood the body is soft and tender, so the brain of the child is a crude soft pulp, undecided in type, pliant and impressible. As the years roll on, and when subjected to proper and not undue exercise it increases in strength and becomes able to stand the pressure of adult life. But if in early youth it is subjected to severe or long continued strain not only is it itself likely to be permanently injured in power and capacity but the body as well will suffer in sympathy. The connection between the brain and the body is so intimate, and the condition of the one so dependent on that of the other that "a healthy mind in a healthy body" is a truism which has been observed and quoted for ages. In fact healthy and properly developed minds cannot exist in unhealthy and imperfectly developed bodies, and the converse that a diseased body accompanies a diseased brain holds equally good.

Accordingly, as the brain plays so important a part in the human economy, it becomes us then to consider carefully, not what it will stand in the way of pressure, but what means are best adapted to ensure its due cultivation and, at the same time, to ensure good, strong, and healthy bodies. The body is, after all, the source of power to the mind, and if its vital force is weakened in any manner the mind must suffer too.

The question now presents itself: Does our educational system in any way interfere with proper physical development? And in reply I would say that unless in judicious hands it is very apt to do so. Year by year, with all its paraphernalia of promotion, entrance, intermediate, primary, and final examinations, it is becoming more and more of the hot-house or forcing order. Cram is, in many instances, the order of the day, and this forcing process is attended in many instances with positive injury both to the body and mind. Every student can recall instances which have come to his own knowledge in which either body and brain has given way, and if in the case of advanced youth such consequences result from excessive mental application, in earlier youth how much greater the danger of it. This is seen in a marked degree in the case of precocious children in whose case the desire for advancement has been encouraged rather than repressed, and who, when a certain degree of mental development is reached, seem to stick there. These are generally found to possess little vitality and are usually the ones who sink under the assaults of disease, their powers of resistance being weakened by their excessive mental application.

Injudicious teachers aided and abetted and often forced by still more injudicious parents also do harm in prescribing excessive homework. In many instances it is positively painful to meet boys and girls coming from school at the hour for dismissal carrying a slate, exercise book, and a small library of text-books; while it may be allowable in the case of the elder pupils to give a little homework, yet leading educationalists and physiologists are almost unanimously of opinion that the 5½ hour limit of brain work should in no case be exceeded in the case of the senior pupils, while for the juniors it is considered to be too much. The close confinement in a more or less impure atmosphere, the enforced quiet, and the necessary restraint are both unnatural and injurious to the child's health, and mind and body both suffer.

Allow me to finish with the following quotation from Herbert Spencer, whose work on "Education," to which I must confess myself largely indebted, should be in the hands of every teacher:—

"Considering the regime as a whole its tendency is too exacting, it asks too much and gives too little. In the extent to which it taxes the vital energies it makes the juvenile life much more like the adult than it should be. It overlooks the truth that, as in the infant, the expenditure of vitality in growth is so great as to leave extremely little for either physical or mental action, so throughout childhood and youth growth is the dominant requirement to which all others must be subordinated.

"Perhaps nothing will so much hasten the time when body and mind will both be adequately cared for as a diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as physical morality. * * * The fact is that all breaches of the laws of health are physical sins. When this is generally seen, then, and perhaps not till then, will the physical training of the young receive all the attention it deserves."

SKEAT'S ETYMOLOGICAL DICTIONARY.*

Nothing but a careful study of, and a lengthened acquaintance with this admirable work will afford the English scholar an adequate idea of its true value to the student. Professor Skeat takes very high rank in the rapidly growing school which has done within the past few years so much for scientific study of the English language. It is matter for amazement that the work of studying English as the ancient languages have for generations been studied, has been so long postponed and that it should have been begun in Germany instead of in England. The works of Maetzner, Koch, and Edward Mueller have done more than show Englishmen the way; they are still the great magazines of information on early English, and even Professor Skeat is constrained to say that "if the writers of *some* of the current 'Etymological' dictionaries had taken Mueller for their guide, they might have doubled their accuracy and halved their labour." Those who cannot possibly have access to the works of these German philologists in the original, and those who are deterred from using them by the number of errors in the translations, will hail with delight such a work as this by Prof. Skeat, which, compared with the voluminous "Woerterbuch" of Maetzner is a perfect *multum in parvo.*

It would be absurd to attempt to give here any detailed sketch of the plan of this dictionary which in part form is already to some extent familiar to many students and teachers of English. A few extracts from the preface will suffice to give an idea of the general character of the work:—

Each article begins with a word the Etymology of which is to be sought * * * After the word comes a brief definition merely as a mark to identify the word. Next follows an exact statement of the actual (or probable) language whence the word is taken, with an account of the channel or channels through which it reached us. Thus the word 'Canopy' is marked '(F.,—Ital.,—L.,—Gk.) to be read as, French, from Italian, from Latin, from Greek; that is to say, the word is ultimately Greek, whence it was borrowed, first by Latin, secondly by Italian (from the Latin), thirdly by French (from the Italian), and lastly by English (from French). * * * After the exact statement of the source follow a few quotations. These are intended to indicate the period at which the word was borrowed, or else the usual middle English forms. * * *

A chief feature of the present work, and one which has entailed enormous labour, is that whenever I cite old or foreign words from which any given English word is derived or with which it is connected I have actually verified the spellings and significations of these words. * * * In the case of verbs and substantives (or other mutually related words) considerable pains have been taken to ascertain and to point out whether the verb has been formed from the substantive, or whether, conversely the substantive is derived from the verb. This often makes a good deal of difference to the Etymology. * * * It is also proper to state that with many articles I am not satisfied. Those that presented no difficulty and took up but little time, are probably the best and most certain. In very difficult cases, my usual rule has been not to spend more than three hours over one word. During that time I made the best I could of it and then let it go. I hope it may be understood that my object in making this and other similar statements regarding my difficulties is merely to enable the reader to consult the book with greater safety, and to enable him to form his own opinion as to how far it is to be trusted.

One remark in Prof. Skeat's preface is worthy of being quoted entire for the the hint it contains to those who feel disposed to write for publication:—

It is common for writers to throw the blame of errors upon the printers, and there is in this a certain amount of truth in some instances. But illegibility should also receive its fair portion of blame; and it is only just to place the fact on record, that I have frequently

*An Etymological Dictionary of the English Language. By the Rev. Walter W. Skeat, M.A.; Erlington and Bosworth Professor of Anglo-Saxon in the University of Cambridge New York, Macmillan & Co.; Toronto, Willing & Williamson Toronto.

received from the press a first rough proof of a sheet of this work, abounding in words taken from a great many languages, in which not a single *printer's* error occurred of any kind whatever; and many others in which the errors were very trivial and unimportant, and seldom extended to the actual spelling.

A single glance at any page of the Dictionary will suffice to show that this is a very high tribute both to Prof. Skeat's caligraphy and to the skill of the printers into whose hands his copy fell. But there is a lesson in his remark which contributors to journals and writers of books have much need to learn. Illegible writing is always inexcusable but it is never more so than when it is intended for the printer. It is hardly necessary to add in the case of a book printed at the Oxford Clarendon Press that it is a marvel of typography.

One cannot help regretting after perusing such a work as this that so little attention is paid in Canadian colleges to the study of the English language. Not even the best works on the subject are specified in the curriculums, and the amount of time and attention bestowed upon the language and its literature are a mere fraction of those bestowed on Latin and Greek. It is to be hoped that the time is near at hand when, at least in University College and Toronto University, English will take its proper position as one of the most important languages in the world whether for educational or for philological purposes. The more generally such books as Skeat's Dictionary come into use the more widespread will be the dissatisfaction with the modes of studying English at present in vogue in Canada.

DR. CRAMP.

Early in June interesting services were held at Acadia College, Nova Scotia, in memory of the late head of the college, Rev. Dr. Cramp. Among the addresses delivered on that occasion the only one published *in extenso*, is that of Dr. Rand, Superintendent of Education for New Brunswick. From that address the following passages are quoted, partly because they convey a vivid impression of the deceased teacher, and partly because of the valuable principles which Dr. Rand himself lay down :—

When Dr. Cramp came to Acadia, there were few students at the College. With the aid of Professor Chipman, he carried on the arts department and the department of theology. This was a courageous undertaking ; but the following summer Professor Chipman and four students of promise were suddenly removed by the appalling disaster in yonder Basin. That was an overwhelming event to Dr. Cramp, but his brave heart rose above it, and his trust in God inspired him to do great things for the salvation of the college. During this period of intensified trial his labours were prodigious, disclosing a depth of resource, a breadth of attainment and a range of acquisition which were fortunate indeed for the future of this institution. At one time or another, he here taught Latin, Greek, history, mental philosophy, moral philosophy, evidences of Christianity, rhetoric, logic, political economy and geology, besides the various branches of the theological department, including Hebrew and Greek exegesis ; and he was almost equally successful as a teacher in each of these subjects.

As I call up before me the every-day contact of students with him in college work, I feel afresh the inspiration of his intense personality. Dignified in mien and bearing, with an eye to command, his presence in the lecture room was stimulating in a high degree. Every student instantly recognized in him a man of original force, and skilled equipment. In his teaching, all truth rested on facts, and reputed facts must be verified before serving as a ground of induction. He taught that lesson with as much persistency as the leaders in modern physics, but unlike many of them, he set his face steadfastly against every phase of mere speculative knowledge. Clearness and realness were essentials with him. The over-wise student found himself put suddenly and severely on the defensive, and felt the thrust of a Damascus blade. He had a rare gift, which he used in a rare way, of humbling self-conceit and giving pride a fall. He made his students feel the immense superiority of intellectual honesty to intellectual power. Accuracy was demanded as a quality of prime importance. He believed, with Arthur Helps, that the man who is to succeed must have an almost ignominious love of details. His own knowledge was wonderfully minute and exact, and once acquired seemed to be always at the command of his will. His extraordinary memory was his right arm in the presence of his class. His criticisms and comments were keen and incisive, clearing error to the bone with the inevitableness of fate. His students were made alive to the truth that correspondence between the thing thought, the thing done and the thing said, is a test of a consistent and noble type of life. Every recitation was a discipline in veracity, in careful statement, in thinking before speaking. Desultory reading was seen to be of little avail, and wide reading—that it tended to confusion unless care was had to read first the latest standard works in any department of knowledge. There was always a breezy and stimulating freshness in the atmosphere of his lecture room. It was no cloister dim. The shouting from the fields of victory in the outside world, whether of peace or war, resounded within its doors, and were turned to swift account in animating the facts of history, in which he was so deeply and accurately versed, or in giving vividness or reality to some practical truth of science or philosophy. It was his practice to use the latest discoveries of science for the purpose of emphasizing the limitations of existing knowledge, and the vastness of the domains awaiting exploration. He kept the windows of his lecture room wide open to the world of action, and trained his students to share in thought and feeling, the struggles of the men of this age the world over in establishing or defending the principles of political or religious liberty. As an extreme illustration of the freedom with which he handled before his classes subjects which were not set down in the printed course, but which he knew were really there, I may instance his exhibition of righteous indignation when the facts in connection with the so called Jamaica Rebellion were laid before the world. Rising in the lecture-room (to the stature of a giant, as it seemed), the lightning flashing from his eyes, he denounced the hanging of men, the flogging of women, and the burning of houses, as the acts of a weak and cowardly tyrant who was a shocking disgrace to the English name and worthy of death. It was nothing to him that Kingsley, Tennyson, Ruskin and Carlyle lent the weight of their great names in defence of Governor Eyre. The inviolable rights of citizens of the empire, and the rights of humanity itself, had been outraged. It was therefore, he said, of concern to the students of Acadia, and demanded their execration. Intelligent, but downright hatred of oppression and tyranny, in every form and in every clime, and glowing yet intelligent sympathy with freedom and constitutional liberty, were aims most surely accomplished by him in all his students. A loyal Englishman himself, his students learned from him the force and power of a discriminating and ardent Christian patriotism. They not only gathered new love for their native land, but felt the noble reverence of his spirit for the institutions of England—reverence not so much for any special forms which they had assumed, as that their existence testified historically to the courage, endurance and moral stamina of the race, and thus gave assurance of stability and progress in personal liberty and free government. By means such as these, he sought to lift his students out of the isolation and poverty of mere provincial life and enrich and ennoble them by a consciousness of vital relations as wide as humanity. Within the range of my experience, his educative force in this direction was unique, and altogether remarkable and immeasurable.

Associated with the earnestness of which I have spoken, and penetrating it through and through, was the not less striking characteristic of his cheerfulness. He was habitually cheerful, and his spirit, like that of all earnest souls, was contagious. The discontented, gloomy student was lifted out of himself by the buoyancy and stimulating quality of Dr. Cramp's animal spirits. There was perpetual sunshine in him, whose warmth revealed the singular youthfulness of his sympathies. Students divined at a glance, and proved through long years the correctness of their first impression, that he had never lost the boy's heart. His freshness and spontaneity ; his interest in comparative trifles when these were of interest or profit to his students; his swift transition from mirthfulness to gravity ; his purity of heart ; his gentleness and tenderness—these and such as these, so obvious to all, and so perennial in their manifestation, attested the childlike nature which dwelt at the very centre of his being. Everyone who knew him as a teacher will say that he was, of all men, a stranger to

The hardening of the heart, that brings
Irreverence for the dreams of youth.

In college discipline Dr. Cramp was considerate, but firm and decided. He knew well the virtue of Arnold's maxim, " A teacher must not see everything." He expected, and secured in a very high degree, the conduct of Christian gentlemen on the part of all. He largely relied on healthy activity, manliness, the sense of honour, and the sense of moral obligation. He desired to train every student not merely to obey when the pressure of authority was upon him, but also to use freedom aright when he became a law unto himself.

HIGH SCHOOL INSPECTION.

By a Head Master:

The changes which have lately taken place in this department of our educational work are turning special attention to the general question of inspection; and, if one may judge from prevalent opinion, it would seem that further change will be considered necessary before the question is settled.

The general principle involved in the appointment of high school inspectors appears to commend itself to all who give the subject any attention. It is generally admitted, moreover, that our schools have been greatly improved through this agency. As long as high schools continue to receive legislative aid, it follows, as a matter of course, that the government should have some guarantee that the grant is being worthily bestowed. But no sufficient guarantee has yet been found which excludes direct personal inspection. It would be unreasonable to ask for high schools an exemption which is not claimed for any other institution thus aided from public funds. inspection, therefore, we shall have. The question is, how can we derive the greatest amount of good from these officers?

When we compare the present state of high schools with their condition prior to the appointment of regular inspectors, we cannot fail to be impressed with the improvement everywhere apparent. That much of this is directly attributable to the agency referred to, can hardly be questioned. The changes introduced, from the entrance examination to the completion of the course—while not without some objectionable features—are, on the whole, in the direction of progress and improvement. Our schools are working in a course more uniform and advanced, while a marked impetus has been given to the entire system. For much of this, I think, we are indebted to our high school inspectors.

The opinion is heard in some quarters, not that we could dispense with these inspectors, but that we must receive from them a greater share of attention, if any real benefit is to result from their visits. It is an indisputable fact that, from various causes, the inspection is sometimes a rather formal one—a flying visit of two hours in some cases doing duty for a year. With some schools this might possibly suffice; as a rule it is by no means satisfactory. We as teachers need a kind of assistance which can be obtained in no other way than by personal intercourse with the inspectors. If they are teachers of experience, their visits should not only give them an acquaintance with the school, but it should afford opportunity for some exemplification on their part of what may be regarded as the best methods of conducting classes. Until this is secured, the benefits of inspection will be comparatively limited.

Again, it is felt that in the department of physical science the work of the high schools is anything but satisfactory as a rule. To quote from the last report of Dr. McLellan—"A necessary condition (in case of collegiate institutes) should be that the sciences—chemistry, botany and physics—be taught experimentally. The teaching of chemistry now is, for the most part, exceedingly imperfect. The Department should be satisfied, not only that the necessary appliances exist, but that the subjects are thoroughly and practically taught." Mr. Marling says:—"Science-teaching could be made of real educational value as to both knowledge and discipline. The so-called 'science group,' as now constituted, is a sham, and injurious, in my opinion, except in a few cases, rather than beneficial, to those who pursue it with the idea that they are learning 'science.'"

If practical effect is to be given to these recommendations, it certainly follows that the practical work, thus very properly demanded of institutes at least, must be tested by a H. S. inspector; it cannot be dealt with at the intermediate. All this will require more time than our inspectors can now devote to it. If our present institutes continue, we shall have in each of the fourteen a science master qualified to conduct a class in practical work. We shall have, therefore, fourteen classes to be examined (at least once a year) in the actual work of the laboratory.

We must all admit the desirability of the course proposed; but it of necessity involves the appointment of a third inspector. If, with two, the ordinary work of inspection can barely be overtaken in the year, it would be impossible for them to take the additional work referred to.

It is no secret that general dissatisfaction prevails in reference to certain features and departments of our normal school. A greater degree of efficiency is imperatively demanded. I venture the opinion that much good would be accomplished if the limited time now given by the inspectors to these schools was somewhat extended.

The experiment of dispensing with a third inspector was made to gratify the advocates of retrenchment in the Legislature, rather than from a conviction that two inspectors could properly do the work.

Let the third inspector, therefore, be restored, and we may then hope for an inspection that will be more satisfactory to the Department and certainly more helpful to the schools. Time could be afforded, in that case, for a thorough revision and close inspection of our normal schools. Should the additional expense be thought an obstacle, let the normal school grant (in 1880 amounting to $36,694) contribute a share in proportion to the attention they would require from the high school inspectors.

OUR SEWING CLASS.

BY MISS ALICE FREEMAN, TORONTO.

Buttons have a tiresome way of coming off just when you are in a hurry, have they not, boys? you often wonder why mother does not fasten them more securely.—Well, perhaps she forgets how strong her boy's fingers are, and how much jerking and pulling each button must endure in the course of a day.

Now would you not like to know how to sew them on for yourselves—it is not a difficult undertaking, and while the girls are busy with their hemming, you might spend a pleasant half hour learning something that will be always useful to you; for some day you may travel many miles away from home and not having mother or sister near, will find it very convenient to be able to sew on all your own buttons. You would like to try? then come with very clean hands to-morrow afternoon, and we will see what we can do.

In the meantime we purchased two yards of the strongest factory cotton, a spool of coarse white thread—needles to correspond, and two cards of common white bone buttons—then tearing the factory into two-inch strips, considered ourselves fully equipped.

The following afternoon there was an air of expectation about the little fellows, and an unusual degree of industry over other lessons, that none might be deprived of their promised amusement; —much comparing of hands and vigorous rubs of grimy knuckles; many audible whispers concerning the merits and demerits of thimbles.

In due time sewing hour arrived, and having supplied the girls with their hemming together with all the instructions required for some fifteen minutes, the boys were given first a needle and length of thread each, these they were required to thread and knot, before going further. Though much astonishment was expressed at the persistency with which the thread would wander around the eye of the needle instead of into it, this was accomplished satisfactorily—if the colour of the thread be not taken into account. Next they were supplied with a strip of cotton each, and shown how to turn down and tack, to prevent fraying: with some patience and infinite pains on the part of the boys—who would tack the material to their fingers, only discovering their mistake as they advanced; —this was also completed. Then came the real work of sewing on buttons. Certain it is that never were buttons so securely fastened before. Through and through the thread was passed, until the much-tried buttons refused to bear any more, and deliberately split in two. Earnestly the boys worked—placing their thumbs over the drillings of each button, to hold it in position, and hunting vigorously with the needle on the under side to find an aperture — sometimes it was found too suddenly; the effect was a quick removal of the thumb to the mouth, and a whispered but heartfelt exclamation. One boy used his slate frame as a stretcher, and fastening his strip of cotton firmly across it, triumphantly pronounced it "the boss way,"—and again, when the hands grew warm, the thread black, and the needle sticky, the top of the desk was used as a forcing machine, to press refractory needles into the already well-filled drillings, and great surprise expressed when the needle snapped in two.

But despite these drawbacks the work was accomplished,—if not with skill, at least with right good will; and no lady, versed in all the mysteries of dainty fancy stitches, could be as proud of her finest production, as we were of the results of our first experience in *sewing on buttons.*

THE KINDERGARTEN.

[The following statement of the chief objects of the kindergarten is taken from the report of Mr. James L. Hughes and Mr. E. P. Roden to the Toronto public school board on their return from an inspection of the St. Louis public kindergartens.—ED.]

THE OBJECTS OF THE KINDERGARTEN.

The objects of the kindergarten may best be briefly stated in the words of its illustrious founder Froebel:—"To take the oversight of children before they are ready for school life; to exert an influence over their whole being in correspondence with its nature; to strengthen their bodily powers; to exercise their senses; to employ the awakening mind; to make them thoroughly acquainted with the world of nature and of man; to guide their heart and soul in a right direction, and to lead them to the origin of all life, and to union with Him."

We have become so accustomed to regard the function of the school as limited to the cultivation of the intellect alone, that it is difficult to form a just estimate of the real value of a system which trains and develops the entire being, morally, mentally, physically, and socially. It will be quite impossible to give an explanation in detail of the methods employed in the kindergarten to accomplish the work outlined by Froebel. It took him thirty years of constant study to complete the system, and it requires at least a two years' course to become a proficient kindergartener. It may be of service to state, also, that the kindergarten is not a school in the ordinary acceptation of that word. It is not a place to teach reading, writing, &c., but consists chiefly of practice with 'gifts,' balls of different colours, cubes, spheres, cylinders, squares, triangles, &c.; 'occupations,' weaving paper mats, cutting and pasting paper patterns, paper folding, interlacing, stick work, slat work, peas work, moulding with clay, perforating paper, worsted work, drawing, &c.; games, plays, and exercise songs. By means of these elements Froebel arranged a system which reaches effectively every part of the nature of the child, and promotes its vigorous and healthful growth.

MORAL TRAINING.

If Froebel had designed to accomplish nothing more by the kindergarten than the development of the moral and religious instincts of childhood, his work would ultimately have become an essential part of all national systems of education. There is no other part of his system that to the thoughtful mind so clearly reveals the comprehensiveness and philosophic basis of his methods, and their wonderful adaptation to the nature of the child, and the laws of its growth. Every one of his remarkable songs, every one of his stories, every one of his games, and every one of his occupations, gives incidentally a practical direction to the moral natures of the children. There is in the kindergarten no sermonizing to children who are not listening, no theorizing about abstractions which they cannot understand, no weak sentimentality, but a genuine acting out of the best tendencies of human nature. The child is made to occupy, in a way that is real to him, every relationship to nature, the family, society, his country, and his Creator. He practices in his games and plays those virtues which form the only sure foundation for the family and the State. He acts submissively to his parents, lovingly towards his brothers and sisters, honourably with his neighbours, kindly to the poor, and tenderly to the aged. He learns to be grateful for benefits, to respect honest work, to know that work is an advantage to the individual and the community, to acknowledge that labour should be justly rewarded, to destroy nothing, to waste nothing, to submit to constituted municipal and national authorities, to give hearty approval to good actions, and to look with just indignation on mean and ungenerous conduct, to restrain his evil tendencies, to be unselfish, to control his tastes even when they are pure and good, as he cannot get everything he desires, and to recognize God, through His works, as the Creator, and as the central power of the universe, the source of knowledge, of love, and of blessing. It is quite impossible to realize, without a close and extended examination of a genuine kindergarten, how a child can be placed in such a variety of circumstances as to make it necessary for him to develop incidentally, without a consciousness of the process, all the better portions of his nature, and to practise the correct moral code for the home, society, and the State. That Froebel was able, after even thirty years' incessant study, to found a system which accomplishes this, conclusively entitles him to an honoured place among educational reformers.

PHYSICAL CULTURE.

The physical benefits conferred by the kindergarten are second in importance only to those resulting from its moral and religious training. The good effects of this department of kindergarten work are so quickly apparent and so easily recognized that there is in some places a popular delusion that the kindergarten consists only of a series of games and plays. This is a grave error; but although the games, plays, and songs do not constitute the entire work of a kindergarten, they form a most important part of it, inasmuch as, while accomplishing many other excellent results, they also produce most desirable effects on the physical systems of the children. The chief of these effects are:—

1. By a large amount of marching in time with music they learn to walk properly, a most important accomplishment.

2. As the plays are so judiciously arranged as to call into natural action every part of the muscular system, the result could only be what it uniformly is, harmonious development, and consequently perfect freedom and gracefulness of action. There is no probability that a child in the kindergarten will grow up with good arms and legs and weak loins and contracted chest.

3. The dramatic gesture practised as a visible interpretation of the thought and sentiment of the songs while they are being sung, leads to a surprising degree of expressiveness and appropriateness in the movements of the hands, the head, the eyes, and indeed, the entire body, while speaking. This is of more importance than at first sight it may appear to be. The skilled elocutionist may thrill his hearers by his tones alone. Vast audiences are frequently moved to tears by the touching gestures of a deaf-mute in reciting the Lord's Prayer. Most people are more deeply affected in a kindergarten by the gestures than by the singing. Dramatic interpretation is to many more touching than vocal interpretation. Either voice or action alone possesses wondrous power of expression, but it is only when they are appropriately united that thought is presented in all its clearness, and feeling communicated with resistless power. It is no light matter, then, for girls and boys to have their bodies trained to act in harmony with their vocal organs in expresing their thoughts and sentiments.

4. The general health of the children is improved, and the vigorous growth of their systems promoted. One of the chief defects of the public school system is that both positively and negatively it interferes with the proper natural growth of the child's body. If adequate attention were paid to the development of the body in school, there would be no complaints about over-study. Body and brain should grow together, do grow together until the child gets to school. The kindergarten is unquestionably the best means of remedying this grave defect in the school. The distinctive feature of kindergarten exercise, as well as of every other part of the system, is that the benefit comes incidentally. The children are not conscious that they are performing calisthenic exercises for the benefit of their health; they are playing for pleasure. Exercise

taken merely to improve the health does not bring such advantages as exercises taken for amusement, or in working under healthful circumstances, so in the kindergarten there are no calisthenics as mere exercises, but the children have to perform the best exercises of the Grecian, Swedish, and German systems of calisthenics in playing their games, and when singing their songs. While taking his exercises the boy is not a boy moving his arms and legs to develop his muscles, but a hopping bird, a jumping frog, a flying butterfly, a carpenter or other tradesman at work, a farmer mowing or threshing with a flail or sowing grain, a windmill in motion, a ticking clock, etc., etc., always practising the best exercises but never being drilled.

Even the extension motions and balance steps of the British army are practised in their essential parts in the kindergarten, not in the formal and unattractive way in which they are presented to the shuffling recruits whom they transform as if by magic into erect and graceful men, but as necessary motions in performing certain plays.

MENTAL TRAINING.

Those who can only gauge a child's mental growth by his advancement in reading, will have difficulty in appreciating the mental advantages which a child enjoys in kindergarten. Thoughtful people are rapidly learning however, that reading as a school study has very little to do with mental growth: in fact, as usually taught, its tendency is to produce mental confusion and dullness. Reading is not taught in the kindergarten. There are some who put on their investigating spectacles, and scrutinize the kindergarten system to find its mental results, as though they expected them all to be immediately apparent, and then, because they cannot find mind nuggets in the only form which they are capable of appreciating, they say they do not exist, and that the kindergarten does not promote mental development. They forget that real growth in nature is slow, and that the preliminary processes of growth may go on for long periods without producing marked visible effects. If the mental training of the kindergarten produced only immediate results, and if its benefits were discernible to every observer, it would not contain sufficient philosophical truth to make it live.

The object of the kindergarten is to expand the mind, rather than to make it a storehouse of facts. It aims to set the mind in action in the exercise of every function of which is capable. The school only attempts to train the mind to remember and reason, often only to remember. The kindergarten calls into play all the powers of the mind, and teaches the child to observe critically, to note results, to compare, to conclude for itself. It develops the imagination, and gradually exercises the will, not accidentally, but incidentally, as an essential part of Froebel's comprehensive scheme. Memory is developed by exercise, not by word repetition; the child learns and remembers what a cube is in the same way as it learned and remembers what a spoon is—by using it. But, while the primary objects of the kindergarten mental training is not to give information, the child really acquires a vast deal of useful knowledge, especially such as will be of value to him in prosecuting the studies of arithmetic, mensuration, geometry, and architectural and industrial drawing. Nor does he need to wait until he begins the systematic study of these subjects before making a practical use of the knowledge he gains. Two of the fundamental rules in acquiring knowledge by Froebel's system are:—1, Children learn by doing; 2, knowledge should be applied as soon as learned. So the extensive knowledge of form which the child receives by using his gifts is applied at once in the various occupations, and through them extended to an examination of all the objects of nature and art with which he daily comes in contact.

The child also receives a practical insight into the relationships of parts to wholes, and is taught the harmony of form and colour that must be found in corresponding parts of symmetrical objects and designs. This leads to the display of originality by the individual children, which cannot fail to produce great and lasting benefit both mentally and morally. It is a grand step in the growth of a human mind when it is convinced that it possesses original power, and need not be a mere imitator.

INDUSTRIAL TRAINING.

There is another kind of physical training in addition to that which trains the physique. It is not alone important to a man's well being that he should be strong, active, and graceful; his hands, the parts of his physical system which he chiefly uses in earning his livelihood, should be trained while he is very young, before his muscles have become fixed and his fingers stiff. There is scarcely any limit to the development of finger flexibility and manual dexterity if it is begun in time and continued systematically. It is a common saying that "a boy's fingers are all thumbs." There is no reason why this should be the case. A girl's fingers are expert in proportion to the amount of appropriate exercise they get. The boy does not usually play on the piano, or do the various kinds of needlework done by his sister, consequently his fingers become thumbs through lack of practice. The boys have thus been allowed to grow up and enter on the work of life without having any attention paid to the development of hand-skill, except what they receive when writing and drawing. This necessarily prevents their ever reaching their highest possibilities in skilled labour of any kind whatever. The individual and national loss thus sustained are too vast to be estimated. The early recognition of this lack in Germany, Switzerland, and France led to the establishment in these countries of technical schools for the special training of the hand in connection with various industrial pursuits. The result of this was that in a few years England found her manufacturing supremacy passing away, and was compelled to follow the example of her Continental rivals. Thoughtful men have for years been studying this problem, and endeavouring to find a remedy for this acknowledged defect in our public schools. This study has led to a proposal to have workshop schools founded as a part of the public school system. There has as yet, however, been no satisfactory plan proposed for the accomplishment of this subject. A more simple and practicable proposition is to have the boys in the junior classes do the same needlework as the girls in school. This has been tried in Boston, and the new educational code recently passed by the British Parliament makes it compulsory in the primary departments of the public schools. So far as I can learn, Toronto was two years ahead of any other place in this matter. Froebel made ample provision for the training of the hand in his system. One of the specific objects in his "finger songs," and in every one of the 'gifts' and 'occupations,' is the development of dexterous finger power.

SOCIAL TRAINING.

Closely allied with moral training is the attention constantly paid to the practice of the courtesies of good society. The home in most cases cannot afford the child the opportunity of associating with a sufficient number of children of his own age to permit the expansion of his social nature. The child needs suitable society, and unless he gets it, important elements of his character make but a feeble growth. The child is to be pitied, however rich may be his parents, whose only associates are adults. It is possible for a child to obtain society on the street, but the risk is too great there. Even at school the social intercourse among the pupils is necessarily confined chiefly to the recesses, and then in most cases is allowed to go on without the presence of the teacher. Froebel saw the evil effects of this, and made ample provision for the drawing out of the social instincts of childhood, as well as for practising the recognized rules of politeness, at the table, in the drawing-room, on the street, wherever man meets his fellow-man.

Respectfully submitted.

JAMES L. HUGHES,
E. P. RODEN.

Examination Questions.

COUNTY OF PERTH PROMOTION EXAMINATIONS.

FRIDAY, MARCH 31ST, 1882.

TIME TABLE.

8:45 A.M.—Open sealed parcel and read instructions.

8:50 " —Seat pupils and read to them their numbers.

	ENTRANCE TO SEN. 3RD CLASS.	ENTRANCE TO 4TH CLASS.	ENTRANCE TO 5TH CLASS.	ENTRANCE TO 6TH CLASS & SEN. 6TH.
9 A.M. to 11	Arithmetic.....	Arithmetic.....	Arithmetic.....	Arithmetic.....
11 " 11½	Dictation.....	Geog. & History	Geog. & History	Geog. & History
11½ " 12½	Reading.....	" "	" "	" "
1 P.M. to 1½	Geography.....	Dictation.....	Grammar.....	Grammar.....
1½ " 2½	"	Reading.....	"	"
2½ " 3	Grammar.....	Grammar.....	Dictation.....	Dictation.....
3 " 3½	"	"	Reading.....	Algebra.....
3½ " 5				"

Entrance to Senior Third Class.

WRITING.

Value 40. Writing will be judged from the Dictation paper. Slates not to be used.

DICTATION.

(To be read slowly and distinctly.)

1. Mary gathered for him branches of willow and hazel twigs and his first production was a pretty little convenient basket which he offered to the farmer's wife as a token of gratitude. He had exactly guessed her taste.
2. Two mattresses and an earthen pitcher of water.
3. A night's lodging.
4. The weights hung speechless.
5. The discontented pendulum.
6. The princess and half the realm.
7. The opportunity of pursuing a liberal course of study.
8. The machinery of the steam-engine was defective.
9. The ingenious youth trained young partridges.
10. An unreasonable apprehension of hydrophobia.
11. The captain seized a knife and cut the animal's tail off.
12. Exhibiting, pursuer, appreciate, manœuvre, asylum, occasionally.

Value—80. Four marks to be deducted for each mistake.

READING.

Third Book, page 44—"I passed some time————forced upon them."

Value—50. Expression, 15. Fluency, 35. Two marks off for each error in pronunciation, and one mark off for every other error in fluency, such as hesitation, omission, substitution, miscalling, &c., &c. Examiner will please fill in the reading marks on the list.

ARITHMETIC.

1. Product, 2796702483; multiplicand, 3456987. Find the multiplier.
2. Dividend, 968959650 / Quotient, 1957494 / Remainder, 120 } Find the divisor.
3. What number must be added to 7869456 to make it exactly divisible by 8975?
4. If 6 lbs. of sugar cost 48 cents what will 19 lbs. cost?
5. At 2 cents a pound how many dollars is a ton of wheat worth?
6. If a man earns $9 a week and pays 75 cents a day for board, in how many weeks will he save $75?
7. Add together the sum, difference, product, and quotient of the two numbers 4125 and 46591875.
8. If I have as many cents as there are inches in 9486 chains, how many dollars have I?
9. A boy who is thirteen years old now will be 57 years old in what year?
10. Wellington died thirty years ago at the age of 83; in what year was he born?

Value—100. Twelve marks each for questions answered.

GRAMMAR.

1. Select the nouns, adjectives, and verbs from the following:—

"Sweet is the hour of rest,
Pleasant the wood's low sigh,
And the gleaming of the west,
And the turf wheron we lie;
When the burden and the heat
Of labour's task is o'er,
And kindly voices greet
The tired one at his door."

2. Divide into subject and predicate:—
   A vast number of lighted candles hung among the branches.
   Two of us in the churchyard lie.
   My stockings there I often knit.
   On this night, a poor little girl walked along the street.
3. Fill up the blanks with suitable verbs:—
   The breeze.....our brows.
   Colder and harder.....the wind.
   Buckets of water.....upon the flames.
4. Supply subjects for the following predicates:—
   .....is made of paper.
   .....is the flesh of the ox.
   .....lay a foot deep on the ground.
   .....makes our clothes.
   .....is a man who makes bread.
5. Write not less than ten lines on "Grace Darling" or "The Poor Match Girl."

Values—1, 11; 2, 8; 3, 6; 4, 5; 5, 10. Total—40.

GEOGRAPHY.

1. How do you know where the North is?
2. What direction from Stratford is each of the following places: Guelph, Toronto, Mitchell, Brantford, Owen Sound?
3. Name the townships in the County of Perth that border on the County of Huron.
4. Name the ten cities of Ontario and tell the county in which each is situated.
5. A block of wood is thrown into the river Avon; name, in order, the waters through which it floats before reaching the Atlantic.
6. On what line of railway is each of the following places located: Chatham, Collingwood, Lindsay, Brampton, Cayuga?

Values—1, 5; 2, 10; 3, 5; 4, 10; 5, 10; 6, 10. Total—50.

Entrance to Fourth Class.

WRITING.

Writing will be judged from the Dictation paper. Slates not to be used.

Value—50.

DICTATION.

(To be read slowly and distinctly.)

1. The principal Saxon chiefs readily agreed to Alfred's proposal but he had many difficulties to encounter, especially in procuring sailors to man the ships. * * * Alfred, during his eventful reign, compiled a code of laws, organized the administration of justice, encouraged the useful arts, and was the friend and correspondent of the most eminent scholars. He spent much of his scanty leisure in literary work, translating into Anglo-Saxon some valuable authors.
2. The flowers were extremely odoriferous.

3. The temperature of the air was delicious.
4. An ingenious strategem was devised.
5. Vigilance, unintelligible, apparel, repetition, unpalatable, nauseous.
6. The Indian allies maintained a sharp skirmish.
7. He speedily despatched messengers to his principal friends in three adjacent counties.
8. A sortie by the besieged was easily repelled.
9. After many vicissitudes of fortune, he left the scene of his many trials and misfortunes.
10. A pair of scales, such as are used for weighing, by wholesale merchants.

Value—80. Four marks to be deducted for each mistake.

READING.

Third Book, page 246—"Almost magical————tomahawk in the other."

Value—50. Expression 15. Fluency 35. Two marks off for each error in pronunciation, and one mark off for every error in fluency, such as hesitation, omission, substitution, miscalling, &c., &c. Examiner will please fill in the reading marks on the list.

ARITHMETIC.

1. Find the G.C.M. of 13792381 and 32080621.
2. Find the least number that will contain 1235192 and 411355 exactly.
3. How many minutes from 8 o'clock on Monday morning till half-past three in the afternoon of the following Saturday?
4. A load of wheat weighs 2 tons; what is it worth at $1.25 per bushel?
5. The divisor and quotient are equal; their sum is 8476 and the remainder is the greatest whole number possible; find the dividend.
6. Which is the heavier, and how much, 1 ounce Troy or 1 ounce Avoirdupois?
7. Resolve 132288 into its prime factors.
8. Find the price of 1580 lbs. of hay at the rate of $16 per ton.
9. Find the sum of the greatest and least of the fractions $\frac{3}{8}$, $\frac{6}{31}$, $\frac{4}{9}$, and $\frac{13}{62}$.
10. Find the sum and difference of $347\frac{15}{243}$ and $298\frac{19}{54}$.
11. If the continued product of 275, 376, 484, and 196 be divided by $77 \times 28 \times 47 \times 55$, what will the quotient be?
12. How many acres, roods, etc., in 1234567 square inches?

Value—100. Ten marks each for questions answered.

GRAMMAR.

1. Analyze the following sentence and parse each word:—
The scattered gleanings of a feast my frugal meals supply.
2. Give the superlative degree of each of the following adjectives:—Good, little, near, happy, beautiful.
3. Write the plurals of the following nouns:—Story, leaf, joy, woman, society, gas.
4. Make sentences containing the following words:—Pare, deer, pane, maid.
5. Write three sentences each containing a noun in the possessive plural.
6. Write a short story of "Daniel in the Lions' Den." Not less than twelve lines.

Values—1, 5+10; 2, 5; 3, 6; 4, 8; 5, 6; 6, 10. Total—50.

GEOGRAPHY.

1. Define Political Geography, Promontory, Peninsula, Volcano, River-basin.
2. Mention the countries of South America, with their capitals, that are partly bounded by the Pacific.
3. Name the principal tributaries of the Amazon and Mississippi.
4. Name the inland Counties of Ontario, with their county towns.
5. What railways connect Goderich and Amherstburg?
6. Locate Portland, Port Stanley, Bracebridge, Pembina, Sidney, Philadelphia, Detroit, Sarnia, St. John, Caraccas.
7. Name the islands and capes on the East Coast of North America.

Values—1, 10; 2, 6; 3, 10; 4, 5; 5, 5; 6, 10; 7, 4. Total—50.

HISTORY.

1. Give some account of the explorations of Marquette and La Salle.
2. How often, when, and by whom has Quebec been taken?
3. What is meant by U. E. Loyalists, Clergy Reserves, "Family Compact?"
4. Who is the Governor-General of Canada? Who the Premier? Who is the Lieutenant-Governor of Ontario? Who the Premier?
5. What caused the Rebellion of 1837?

Values—1, 10; 2, 6; 3, 4, 4, 4; 5, 6. Total—30.

Entrance to Fifth Class.

WRITING.

Writing will be judged from the Dictation paper. Slates not to be used.

Value—50.

DICTATION.

(To be read slowly and distinctly.)

1. At first we imagined that it only proceeded from some magazines, to which the Russians as usual set fire in their retreat. Eager to know the cause of this conflagration, we sought in vain for some one who could tranquillize our restless curiosity; but the impossibility of satisfying it redoubled our impatience and increased our alarm. In conformity with the desolating plan of the campaign, the ruin of the ancient capital of the Czars had been determined.
2. An immense quantity of valuable commodities.
3. The cellars were filled with sugar, oils, and resin.
4. In this apartment guests were received with imposing ceremony.
5. A symbol of barbarism.
6. Past rows of houses, villas, crescents, and terraces.
7. A band of foreign auxiliaries.
8. Human skeletons and pieces of wreck were disinterred.
9. Unparalleled, assassinated, aggravating, imperceptible, ascendancy, vengeance, infallible, harassing, imitation, despair.
10. The Norwegian Colonies of Greenland, Jacques Cartier at Hochelaga, Cortez in Mexico, The Earthquake of Caraccas, Hermann, the deliverer of Germany, The Battle of Thermopylae, The destruction of Pompeii.

Value—80. Four marks to be deducted for each mistake.

READING.

Fourth Book, page 89.—"Gentlemen, I commend to ..... to British troops."

Value—50. Expression, 15. Fluency, 35. Two marks off for each error in pronunciation, and one mark off for every other error in fluency, such as hesitation, omission, substitution, miscalling, &c., &c. Examiner will please fill in the reading marks on the list.

ARITHMETIC.

1. Find the least number that will contain 68590142 and 85044059.
2. What part of a mile represents the same distance as three-quarters of an inch?
3. How much money can be made on 500 tons of coal, bought for $5 per ton of 2240 lbs., and sold at the same price per ton of 2000 lbs.?
4. What is a gentleman's income, who, after paying sixpence out of every pound of it, has £962 16s. 6d. left?
5. Simplify $\dfrac{\frac{1}{23} \text{ of } 6\frac{13}{17} \text{ of } 24\frac{11}{13} - 4\frac{13}{18} \times 3\frac{33}{34} \div 3\frac{37}{60}}{8\frac{17}{19} \text{ of } 5\frac{14}{39} \div 4\frac{15}{32} - 7\frac{19}{20} \times 5\frac{11}{65} \div 14\frac{21}{25}} \times 4\frac{8}{23}$.
6. Find the value of $3\cdot754 + 4\cdot63 + 2\cdot4 + 5\cdot21$.
7. Add together $\frac{1}{7}$ of a yard, $\frac{1}{7}$ of a foot, and $\frac{1}{7}$ of an inch.
8. *A* can do $\frac{2}{3}$ of a work in 8 days, and *B* can do $\frac{3}{4}$ of the same work in 12 days. In how many days can both do it by working together?
9. Reduce $\frac{13}{19}$, $\frac{18}{19}$, $\frac{26}{19}$, $\frac{36}{19}$ to equivalent fractions having the same numerator.

10. Reduce $\frac{3}{7}$ of an ounce Troy to the decimal of a pound Avoirdupois.

11. *A* and *B* have 136 acres of land; $\frac{2}{3}$ of *A's* share is equal to $\frac{3}{4}$ of *B's* share. Find value of *A's* land at $75 an acre.

12. A courtyard is 20 feet 6 inches square. What will it take to pave it at 5s. 6d. per square yard? Give answer in dollars and cents, a shilling being equal to $24\frac{1}{3}$ cents.

Value—100. Ten marks each for questions answered.

GRAMMAR.

1. Analyze, writing out each proposition separately and stating its kind and relation:—

"They *possess* a *long* and *extremely* slender bill, with *which* they extract the nectar, and the small *insects which lurk* in the recesses of the flowers."

The boy *stood* on the burning deck
Whence *all* but *he had fled*;
The flames *that lit* the battle's wreck,
Shone round him *o'er* the dead.

2. Parse the words in italics.

3. Make a noun and a verb from each of the following adjectives: Golden, glorious, wondrous, different.

4. Tell the difference in use between *piece* and *peace*; *ate* and *eight*; *cruise* and *crews*; *plain* and *plane*; *fair* and *fare*.

5. Correct the following, giving reasons:—

A good end does not warrant using bad means
They that honour me, I will honour.
Let him be whom he may, I cannot wait for him.
Has either of your three friends arrived?

6. Construct sentences, exemplifying the different uses of the nominative case.

Values—1, 14; 2, 14; 3, 8; 4, 10; 5, 8; 6, 6. Total—60.

GEOGRAPHY.

1. Define water-shed, mathematical geography, steppe, horizon, cardinal points.

2. Bound France, Arabia, Egypt, Ecuador.

3. Name the British possessions in Africa, with their chief cities.

4. What are the boundaries of the North Temperate Zone, and what is its width in degrees?

5. Locate Liverpool, Glasgow, Londonderry, Richmond, Madras, Alexandria, Jerusalem, Venice, Brandon, Cayenne.

6. Over what railways would you travel, and through what important cities would you pass in a journey from Montreal to Winnipeg?

7. Where do the people of Ontario get the following articles in a raw state:—Cotton, silks, raisins, coal, coffee, sugar, currants, rice, tobacco, tea?

8. Name in order any ten Canadian ports and give their situations.

Values—1, 8; 2, 4; 3, 10; 4, 6; 5, 10; 6, 12; 7, 10; 8, 10. Total—70.

HISTORY.

1. Name the sovereigns of England who were reigning at the close of each century, from the ninth to the eighteenth inclusive.

2. How was Queen Anne related to her successor?

3. What do you understand by "The Cabinet," "The Invincible Armada," "The Jacobites," "The Repeal of the Corn Laws," "The Confederation Act."

4. Mention some important differences between the Government of Canada and that of the United States.

Values—1, 10; 2, 5; 3, 15; 4, 10. Total—40.

Entrance to Sixth and Senior Sixth Class.

WRITING.

Writing will be judged from the Dictation paper. Slates not to be used.

Value—50.

DICTATION.

1. The ancient languages are, as pieces of mechanism, incomparably more beautiful than any of the modern languages of Europe.

2. These same causes produced analogous effects upon the Saxons.

3. The forced approximation of the two races produced many reasons for fraternizing.

4. A strong sympathy for intellectual excellence was the leading characteristic of Charlemagne, and this undoubtedly biassed him in encouraging the power and pretentions of the hierarchy.

5. Magna Charta embraces sixty articles expressed in a clear, terse, and authoritative manner. The franchises of the towns were secured, the hardships of villeinage were alleviated, but the essential prerogatives of the sovereign were untouched.

6. Auxiliary, etymologically, indefatigable, parliamentary, ignominy, eulogiums, homogeneous, manœuvring, irresistible, idolizing, obsequies, photographic, laboratory, atmospherical, summary, edifices, illiterate, poignant, tyrannical, bazaar, vicissitudes, colossal, inexorable, telegraph.

Value—80. Four marks to be deducted for each mistake.

READING.

Fifth Book, page 77.—From "The sun is reflected" ——— to "is awakened anew."

Value—50. Expression, 15. Fluency, 35. Two marks off for each error in pronunciation, and one mark off for every other error in fluency, such as hesitation, omission, substitution, miscalling, &c., &c. Examiner will please fill in the reading marks on the list.

ARITHMETIC.

1. Find the least sum of money in dollars and cents which can be paid either in pence, shillings, sovereigns, or guineas; £1 sterling being = $4.86.

2. *A* spent $\frac{1}{6}$ of his money and gave away $20; he then spent $\frac{1}{5}$ of the remainder and gave away $10 less than $\frac{1}{4}$ of what then remained. He had $48 left. How much had he at first?

3. A man agreed to work for $1.50 per day and his board; for each day lost he was to forfeit 40c. In 77 days he earned $77.50. How many days did he lose?

4. A watchmaker buys a watch for $12. What price must he ask for it so that after throwing off 25% of the price asked he may sell it for 25% more than the cost price?

5. Simplify $\$35\frac{11}{14} \div \left\{ \frac{\cdot\dot{7}1428\dot{5} - \cdot\dot{4}2857\dot{1}}{\cdot\dot{8}5714\dot{2} - \cdot\dot{2}8571\dot{4}} + \frac{\frac{4}{15} \text{ of } \frac{5}{6} \div \frac{5}{18} \times (3\cdot9 \times 15\frac{5}{13})}{(\frac{6}{7} \times \frac{55}{48} \times \frac{24}{50}) + (\frac{27}{36} \times \frac{45}{54})} \right\}$

6. A man lends $1000, part at 8%, part at 6%, and receives $72 interest; how much is lent at each rate?

7. What kind of vulgar fractions give finite decimals, and why?

8. Sixty thousand bricks are required for a wall 15 feet high and 1 foot $10\frac{1}{2}$ inches thick, each brick is 9 inches long by $4\frac{1}{2}$ inches wide and 3 inches thick, including mortar; find the length of the wall.

9. I wish to exchange £800 in 3% consols at $93\frac{1}{5}$ for Canadian Bank of Commerce, shares at 154. How much will I receive? £1 being $4.84.

10. A train 88 yards in length overtakes *B* walking at the rate of 4 miles an hour and passes him in 10 seconds, but 10 minutes afterwards it meets *C* and passes him in $7\frac{1}{7}$ seconds. How long before *B* and *C* meet?

11. For the carriage of 50 bushels of wheat to market I give 1 bushel wheat and 16 cents, but for the carriage of 40 bushels I would give 1 bushel and receive back 10 cents. At what is a bushel of wheat valued?

12. A man walked from his own residence to Stratford in 4 days and home again in 5 days, walking each day one mile less than he did the preceding. How far does he live from Stratford?

Value—100. Ten marks for each question answered.

GRAMMAR.

1. The honourable member who has just spoken *has made what* in one respect *may appear* a *paradoxical*, but *what*, I think, as human nature is constituted, was a very conciliatory *speech towards* the United States.

I do not mean freedom from aggression from *without*, *of which*, *as* I have said, I have but little fear, but I do mean freedom from internal strife.

(*a*) Analyze fully.
(*b*) Parse the words in italics.

2. Construct sentences to exemplify the different kinds of subordinate clauses.

3. Point out and give the meaning of the roots, prefixes, and affixes of chronological, consanguinity, approximate, accomplice, inexorable, allegiance.

4. In how many relations may a substantive clause stand in a sentence? Give an example of each relation.

5. Distinguish between verbs of complete and incomplete predication.

6. Define *strong conjugation*, *transitive verb*, auxiliary verb, defective verb.

7. Criticise the following sentences, making corrections where necessary :—

He is a better philosopher than a statesman.
Every one to their own taste.
The winter has not been as severe as we expected it to have been.
Two is better than one.
Wheat is being sold for a dollar a bushel.
Enjoying health and to live in peace are great blessings.

Values—1 (*a*) 20, (*b*) 20; 2, 6; 3, 12; 4, 12; 5, 8; 6, 8; 7, 14. Total—100.

GEOGRAPHY.

1. Explain the phenomena of the tides.

2. What is the position of the earth's axis with reference to the plane of its orbit, and what are the chief consequences of that position?

3. Name the thirteen original states of the American Union with their capitals.

4. Trace the course of the Danube, naming its tributaries and the countries drained by it.

5. Name and locate the possessions of France in the different parts of the world.

6. Locate the following islands and tell the Government to which each belongs :—Cyprus, Cronstadt, Corfu, Elba, Sark, Niphon, Singapore, San Juan, Trinidad, Miquelon.

7. Draw a map of the Mediterranean Sea, marking the countries on its shores and the courses of the principal rivers that flow into it. Show by a double dotted line the boundaries of the Roman Empire at the time of its greatest extent.

Values—1, 5; 2, 10; 3, 20; 4, 5; 5, 5; 6, 20; 7, 5. Total—70.

HISTORY.

1. Where and when and between what armies was each of the following battles fought :—Marathon, Zama, Actium, Chrlons, Naseby, Trafalgar, Jena, Austerlitz, Waterloo, Balaclava?

2. Attach an important historical event to 1096, 1215, 1453, 1513, 1535, 1587, 1665, 1759, 1821, 1867.

3. What led to the establishment of representative government in England?

4. When did the following eminent personages live, and for what are they respectively famous :—Miltiades, Lysander, Hannibal, Cleopatra, Caractacus, Boadicea, Charlemagne, Warren Hastings, Amherst, Bonaparte?

5. Enumerate the evils which the Confederation of the British North American Provinces was designed to remedy.

6. What do you understand by "Home Rule" for Ireland?

Values—Ten each.

ALGEBRA AND GEOMETRY.

1. What is the dimension of a term? When is an algebraical expression said to be homogeneous?

2. Resolve $a^{20}-x^{20}$ into six elementary factors.

3. Solve the following equations :—

$$\frac{x-7}{x+7}=\frac{2x-15}{2x-6}-\frac{1}{2(x+7)};$$

$$\frac{(2x+3)x}{2x+1}+\frac{1}{3x}=x+1,$$

4. There is a number of two digits, whose difference is 2, and, if it be diminished by half as much again as the sum of the digits, the digits will be inverted. Find it.

5. Triangles upon the same base and between the same parallels, are equal to one another. Prove.

6. The greater side of every triangle is opposite to the greater angle. Prove.

7. Define semicircle, polygon, scalene triangle, trapezium, hypothesis.

Values—1, 8; 2, 8; 3, 10+10; 4, 14; 5, 10; 6, 10; 7, 5.

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

CHAPTER II.

EXERCISE II.

33. What is meant by an *acid*, an alkali, a salt? give the tests.

34. Estimate the weight of the oxygen in a barrel of water, 63 gallons, given 1 gallon = 10 lbs.

35. Draw the line separating simple from compound bodies.

36. Write out from memory a table of the non-metals.
(1) in alphabetical order (2) in the order of their atomic weights.

37. How many grams of potassic chlorate will yield 192 grams of oxygen? 490

38. How many pounds of zinc will be required to generate 20 lbs of hydrogen from sulphuric acid? given the formula $H_2SO_4+Zn=ZnSO_4+H_2$. 652

39. Find the percentage of oxygen in hydric sulphate. 65.714

40. What is the formula for a compound having the percentage composition O=72·73, C=27·27? CO_2. N.B. (72·73÷16): (27·27÷12): : O : C. The slight discrepancy from 1:2 is owing to error in the experimental determination of the 27·27.

41. Give the formula for a substance containing K=31·837, Cl=29 and O=39·183 $KClO_3$

42. Give the percentage composition of ammonic chloride NH_4Cl. N=26·17, H=7·476, Cl=66·355.

43. Nitric acid is made by distilling saltpetre (KNO_3) with hydric sulphate, H_2SO_4, given the formula $KNO_3+H_2SO_4=HNO_3+HKSO_4$ (hydric potassic sulphate) find how much acid 300 grams of nitre or saltpetre will produce. 187·1

44. Name the substances represented by the formulas MnO_2, NH_4Cl, Fe_3O_4, P_2O_5, $ZnSO_4$, $CaCO_3$ and mention any experiments in which they occur. (2nd Class 1876).

45. Find the weight of carbonic acid produced by burning 5 grs. of carbon in oxygen 18.3. (do 1877)

46. How much phosphorus is contained in 120 lbs of bone-ash consisting of 88·4 per cent of tricalcic phosphate and 11·5 per cent of calcic carbonate? (do. 1879). ANS 21·216.

47. How many lbs of charcoal (carbon) in a barrel of pure sugar, 300 lbs? 126·3.

48. How many pounds of zinc in 350 lbs of zinc sulphate? ANS. 141·3 (2nd Class 1877)

49. Name all the substances represented in the equation $HNO_3+HKO=KNO_3+H_2O$.

50. If 200 grams of the first substance be used how much of the last named substance will be produced? 57·14

51. Name the substances in the formula $2NH_4Cl+CaH_2O_2=2NH_3+CaCl_2+2H_2O$. What weight of the first will produce 1 kilogram(=1000 grams) of the third? ANS. 53.5 yield 17 hence 3147 yield 1000.

52. Name the substances in the equation
$Na_2CO_3+2HCl=2NaCl+H_2O+CO_2$.

53. Bleaching powder and sulphuric acid produce calcic sulphate, water, and chlorine. Represent the reaction by an equation.

54. One part of manganic dioxide and two parts each of sulphuric acid and common salt yield sodic sulphate, manganous sulphate ($MnSO_4$), two parts of water and two of chlorine. Express this symbolically.

55. Write out in words the meaning of the following equations;—

$KClO_3 = KCl + O_3$

$3MnO_2 = Mn_3O_4 + O_2$. N.B. compare Fe_3O_4; trimanganic tetroxide

$2H_2SO_4 = 2SO_2 + 2H_2O + O_2$

$2HgO = 2Hg + O_2$

$CaCO_3 + 2HCl = CaCl_2 + H_2O + CO_2$

$3Fe + 4H_2O = Fe_3O_4 + 4H_2$. N.B. triferric tetroxide.

56. In the formula $N_2CO_3 + 10H_2O$, what is the $10H_2O$ called?

57. In H_2SO_4 that is H_2O,SO_3 what is the H_2O called?

58. What is the province of organic chemistry?

59. What sort of substances have names ending in —yl as methyl, formyl, hydroxyl, sodoxyl, enproxyl?

60. Define oxyacid, hydracid, and sulphacid.

61. What is an anhydride? Name some and give their formulas.

62. What determines the basicity of an acid?

63. What determines whether a salt is normal or acid?

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20. There are three principal varieties of chemical changes or reactions, namely.

1. **Synthesis, or Composition,** the direct union of two elements, atoms uniting to form molecules. Example:— chlorine and hydrogen under the influence of light or of electricity combine directly, $H + Cl = HCl$.

Cases of pure synthesis seldom if ever happen in the strict sense. Almost every chemical process is attended both with the breaking up of molecules into atoms and the re-grouping of these atoms to form new molecules. This is true even of elementary substances like hydrogen and chlorine. We have used the *atomic formula* but the *molecular formula* $H_2 + Cl_2 = 2HCl$ probably expresses the real operation. Similarly free oxygen and free hydrogen combine to form water $2H_2 + O_2 = 2H_2O$. There may be cases in which the molecule consists of a single atom but they are rare. In general the term synthesis is employed to designate the change which takes place when the old molecules attach to themselves more material, and new molecules of greater weight result as when iron is burnt in oxygen, $Fe_3 + O_4 = Fe_3O_4$.

2. **Analysis,** or **Decomposition,** the separation of a compound into simpler compounds, or into its elements, the breaking up of molecules into atoms. Examples:—mercuric oxide by the application of heat is split up into its elements $2HgO = Hg_2 + O_2$. Similarly by a galvanic current $2H_2O = 2H_2 + O_2$, by heat potassic chlorate is decomposed $2KClO_3 = 2KCl + 3O_3$

3. **Metathesis, Replacement,** or **Substitution,** in which one ingredient of a compound substance is withdrawn and its place supplied by some other material, the atoms of one molecule changing places with the atoms of another molecule. It might be regarded as a combination of analysis and synthesis, and and is therefore frequently called *Double Decomposition.*

Examples :—metallic sodium immersed in water decomposes the water by replacing the hydrogen $2H_2O + Na_2 = 2NaHO + H_2$. Each atom of sodium displaces one atom of hydrogen from a molecule of water and forms caustic soda or sodic hydrate with the remaining atoms of the water molecule. The displaced hydrogen is liberated in the free state. Add a little hydrochloric acid to this caustic soda and water and common salt are produced, thus $NaHO + HCl = H_2O + NaCl$. The hydrogen of the acid and the metal of the alkali have replaced each other. Numerous examples will occur as we proceed.

21. There are two peculiar conditions under which chemical action will sometimes take place even when ordinary means fail to develop the chemical force. They are called *Catalysis* and the *Nascent State.*

It is sometimes found that the mere presence of another body which itself remains quite unchanged, is sufficient greatly to facilitate, or even to determine the combination of elements, or the separation of a compound. This influence is termed catalysis. Thus free oxygen gas and double its volume of free hydrogen gas diffused together in the same vessel form a mechanical mixture known as oxyhydrogen gas. Under ordinary conditions this gas may be kept for a long time without undergoing any chemical change. But when a piece of porous spongy platinum is introduced the gases combine to form water and the platinum becomes quite hot. Charcoal produces a similar effect on a mixture of oxygen and sulphuretted hydrogen, (H_2S). The gases combine with explosion, but the charcoal undergoes no change, nor does the platinum in the preceding example. In preparing oxygen from potassic chlorate ($KClO_3$), it has been found that the gas is given up at a much lower temperature if some black oxide of manganese, (manganic dioxide, MnO_2) be mixed with the chlorate. [N.B. See that the manganic oxide has not been adulterated with coal dust or the mixture will be explosive.] But the oxide itself remains unchanged. Even powdered glass or sand will have a similar effect in causing the chlorate to decompose at a lower temperature. This catalyctic influence is not well understood, but it is conjectured that in some instances at least the neutral substance acts as a carrier. Thus the MnO_2 may seize part of the oxygen of the $KClO_3$ and form MnO_3, this MnO_3 then decompose into $MnO_2 + O$ and the MnO_2 be ready to repeat the process. In other cases, as those of charcoal and platinum, the third substance acts by condensing the gases in its pores.

22. It is also observed that at the moment any substance is liberated from a chemical combination its affinity or power of entering into combination with other elements is greatly exalted. The substance is then said to be in the *Nascent State.* The increased energy of combination observed is probably owing to the separation of individual atoms which at first have not as yet united with each other to form molecules. Thus, nascent hydrogen would be represented by H while ordinary free hydrogen would be HH or H_2, for as previously stated the molecule of the element is believed to consist of at least two atoms.

A high temperature, the gaseous form, catalyctic influence, the nascent state and a strong current of electricity are powerful means of promoting chemical action, more especially when two or more of them are brought to bear simultaneously. Numerous cases occur which must be carefully noticed. Thus free oxygen and free hydrogen do not ordinarily combine, but if oxygen and hydrogen be brought together at the moment of their separation from some compounds they immediately unite to form water. The bleaching power of chlorine also depends on nascent oxygen.

23. After innumerable experiments and careful observation chemists have been able to sum up the essential points discovered with regard to chemical action under the five following statements commonly known as the Laws of Chemical Combination.

I. **The Law of Constant Constitution.** The same chemical substance contains the same elements.

II. **The Law of Fixed or Constant Proportion.** The elements of any substance are always combined in the same proportion by weight. These combining weights, chemical equivalents, or atomic weights are given in section 14.

III. **The Law of Multiple Proportions.** When one body combines with another in several proportions, the higher proportions are multiples of the lower.

IV. **The Law of Compound Proportion.** The combining proportion of any compound is the sum of the combining proportions of all its constituents.

V. **The Law of Reciprocal Proportions, or Equivalent Proportions.** If any number of substances, say A. B. C. D. etc., each unite with another substance, say X, then the proportions by weight of A. B. C. D. etc, which severally combine with X will represent multiples or measures of the proportions in which A. B. C. D. &c., combine among themselves provided any such unions take place, for example AB, AD, BC, &c.

24. Explanations and examples of the Laws. The first law merely states that water is found, the world over, to consist of oxygen and hydrogen and nothing else; salt of sodium and chlorine and nothing else; sugar always of the same three things viz., carbon, hydrogen, oxygen.

The second law asserts that any given substance not only contains always the same elements and no others, but also that these same elements are united in precisely the same proportions. It states that the chemical formula and the percentage composition of any given substance are unchangeably the same, that sugar, water, ammonia, chlorate of potash etc. always yield the same percentage of the same ingredients.

The third law is well illustrated by the compounds of nitrogen and oxygen, $N_2O, N_2O_2, N_2O_3, N_2O_4, N_2O_5$, called nitrogen, mon-oxide, di-oxide, tri-oxide, tetroxide, and pentoxide, in which we have two parts by weight of nitrogen united with one, two, three, four or five of oxygen. It is found impossible to prepare a compound containing any intermediate quantity of oxygen, as nitrogen two parts and oxygen three and a quarter parts. Similarly we have CO_2 and CO; SO_2 and SO_3; Cl_2O, Cl_2O_3 and Cl_2O_4, but no intermediate proportions.

The fifth law may be exemplified as follows:—

	32	parts of sulphur	unite with	56	parts by weight	of	iron,	FeS.
	71	" chlorine	" "	56	" "	"	" "	$FeCl_2$.
Hence	32	" sulphur	" "	71	" "	"	chlorine,	SCl_2.
Again	14	" nitrogen	" "	381	" "	"	iodine,	NI_3.
	3	" hydrogen	" "	381	" "	"	" " ,	3HI.
Hence	14	" nitrogen	" "	3	" "	"	hydrogen,	NH_3.

Similarly.

16	parts of O	unite with	2	parts by weight	of	H,	H_2O.
32	" " S	" "	2	" "	"	" H,	H_2S.

Hence O and S combine in measures or multiples of these proportions.

32	parts of S	unite with	2×16	parts of	O	,	SO_2
also "	"	" " "	3×16	" "	O	,	SO_3.

The fourth law follows from the second by simple addition. Thus $H_2SO_4 = 2+22+64=98$ the combining weight of sulphuric acid.

25. **Remarks on the Laws of Combination.** With respect to the law of constant constitution, we must remember that a number of substances exist in two or more distinct forms which in outward appearance, and physical properties have little in common, whilst their chemical relations are identical. These differences are brought about by physical and sometimes by chemical agency. The substances undergo a change of state and become modified in many physical and some chemical properties, but nevertheless still consist of nothing but the same kind of matter, the very same chemical substance, because they produce the same chemical products, and can sometimes be very easily converted back into their original or normal form. Thus carbon exists as charcoal, as diamond, and as black-lead. Such change of appearance and properties is called an **Allotropic Modification,** *Allotropy* or *Allotropism* (allos = another, tropos = form).

Phosphorus presents a remarkable instance of this metamorphosis. Common yellow phosphorus is a waxy-looking solid, takes fire a little above blood heat, is luminous in the dark, soluble in carbonic disulphide, transparent, glassy, quite soft and flexible, and very poisonous. Red phosphorus, used for making matches, is an allotrope of the yellow variety. It is hard, brittle, red colored, does not take fire at a temperature considerably above that of boiling water, does not dissolve in carbonic disulphide at all, is not poisonous, not glassy in appearance, and does not shine when rubbed in the dark. Yet at a high temperature, say 500° Fah., it is changed back to the common variety. Oxygen, carbon, sulphur, boron, and silicon exist in two or more states in which their properties are widely different. Nor is allotropism confined to simple substances. Some compounds, such as silica, and the peroxides of iron and tin present allotropic modifications. These changes are generally ascribed to changes in the arrangement of the atoms within the molecules, or of the molecules themselves.

26. With respect to the law of constant proportions, let us notice that the converse is not true. The same elements united even in the same proportion do not always produce the some compound.

For example many organic compounds are composed of a like number of atoms, but have wholly different properties. Thus oil of turpentine, oil of lemons, of bergamot, lavender, pepper, camomile, caraway, cloves, thyme, and oil of oranges all possess the same chemical constitution, namely $C_{10}H_{16}$. It is a common thing for oil of lemons exposed to sunshine to convert into oil of turpentine, and thus cause the cook to spoil her cake. **Isomerism** is the term used to denote these differences of physical and chemical properties among bodies having the same chemical composition. *Polymerism* is used to denote that the bodies have the same percentage composition, but have different combining numbers, as hydric cyanurate and hydric cyanate, $H_3C_3N_3O_3$ and 3HCNO whose combining numbers are 132 and 44; common aldehyde and acetic ether, C_2H_4O and $C_4H_8O_2$ whose percentage is the same but their atomic weights 44 and 88 respectively.

CORRECTION.—At page 110, section 17, second sentence, should read "Those which appear at the positive pole are called *chlorous* or *electro-negative*, those at the negative pole *basylous* or *elector-positive*." The words chlorous and basylous were accidentally misplaced, which made the following sentences unintelligible.

RULES FOR DESCRIBING THE PRINCIPAL NATURAL DIVISIONS OF LAND AND WATER.

BY A. H. O.

LAND DIVISIONS.

1. A CONTINENT.—State where it is in the eastern or western hemisphere, its position with respect to the equator, and what bodies of water are adjacent to it.

Example.—North America is situated in the northern part of the western hemisphere, north of the equator, and has the Arctic ocean on the north, the Atlantic on the east, and the Pacific on the west.

Exercise.—Describe the following continents:—South America, Europe, Asia, Africa, and Australia.

2. AN ISLAND.—State its direction from the nearest mainland or larger island, and in what body of water it is situated.

Examples.—Newfoundland lies south-east of Labrador, in the north Atlantic ocean. Jamaica lies south of Cuba, in the Caribbean sea.

Exercise.—Describe the following islands:—Greenland, Cuba, Vancouver, Ireland, Sicily, Hayti, Ceylon, New Guinea, Tasmania, Borneo, Madagascar, Sumatra, Great Britain.

3. AN ARCHIPELAGO.—State in what body of water it is situated, the direction in which it extends, and its position.

Example.—The West India Islands, in the north Atlantic ocean, extend in a south-eastern direction, from the peninsula of Florida to the Gulf of Venezuela in South America.

Exercise.—Describe the following archipelagoes :—Japan Isles, Philippine Isles, Kurile Isles, Ionian Isles, Cape Verde Islands, Sunda Isles, Moluccas, Canaries, Mascarenes, Comoro Islands.

4. A PENINSULA.—State in what direction from the mainland it projects, and what bodies of water nearly surround it.

Example.—Nova Scotia projects south-east from New Brunswick, and is nearly surrounded by the Bay of Fundy, the Atlantic ocean, and Northumberland Strait.

Exercise.—Describe the following peninsulas :—Florida, Labrador, Yucatan, California, Aliaska, Alaska, Arabia, Hindostan, Further India, Kola, Brittany, Crimea, Malay, Anatolia, Katiwar, Corea, Kamtschatka ; also the Danish, Iberian, Italian, Hellenic, and Scandinavian peninsulas.

5. An ISTHMUS.—State what bodies of water it lies between, and what bodies of land it connects.

Example.—The Isthmus of Panama, lying between the Caribbean sea and the Pacific ocean, connects Central and South America.

Exercise.—Describe the following isthmuses :—Tehuantepec, Finland, Corinth, Perekop, Suez, Kraw.

6. A. CAPE.—State from what coast of what country it projects, and into what body of water.

Example.—Cape Farewell projects from the south coast of Greenland, into the Atlantic ocean.

Exercise.—Describe the following capes :—Brewster, Barrow, Sable, San Lucas, Mendocino, Chudleigh, Orange, St. Rogue, Corrientes, Aguja, Gallinas, Nordkyn, Naze, Roca, Tarifa, Leeuwin, Byron, Van Diemen, Comorin, Cambodia, Ras-al-Had, Aniwa, Spartel, Blanco, Guardafui, Amber, Matala, Agulhas, Verde, Ceuta, Bon, Negro, Palmas, Negrais, Baba, Lopatka, Prince of Wales, Charles, Race, Ray.

7. A PLAIN.—State between what it extends (length), and between what it lies (breadth).

Example.—The Atlantic Plain extends from the Gulf of St. Lawrence to the Gulf of Mexico, between the Alleghanies and the Atlantic ocean.

Exercise.—Describe the Llanos, the Silvas, the Pampas, the Great Plain, the Plain of Hungary, the Siberian Plain, the Plain of Turkestan, the Plain of Hindostan, and the Plain of China.

8. A MOUNTAIN.—State to what range it belongs (if any), and in what part of what country it is situated.

Example.—Mt. Fairweather in the Sea Alps, is situated in the north-west part of British Columbia.

Exercise.—Describe the following mountains :—Kenia, Sinai, Kilimandjaro, Ararat, Blanc, Peshau and Hoshan, Etna, Hecla, Vesuvius, Cotopaxi, Everest, Chimborazo.

9. A MOUNTAIN RANGE.—State the country or countries in, or between which it is situated, its direction, and the points between which it extends.

Example.—The Sierra Nevada Range, in the United States and Mexico, extends in a south-easterly direction from Cape Blanco to Cape San Lucas.

Exercise.—Describe the following ranges :—Pyrenees, Apennines, Carpathians, Alleghanies, Elburz, Gawler.

10. A MOUNTAIN SYSTEM.—State the countries through which it extends, its general direction, and the number of divisions, or ranges it comprises.

Example.—The Scandinavian system extends southward through Norway and Sweden from North Cape to the Naze, and comprises three principal divisions, the Kiolen Range, the Dofrines, and the Langfield.

Exercise.—Describe the following systems :—The Iberian, Alpine, Altai, Himalaya, Kuen-Lun, Alleghany, Andeau.

WATER DIVISIONS.

1. AN OCEAN.—State its direction from the continents whose coasts it washes.

Example.—The Atlantic ocean is east of North and South America, and west of Europe and Africa.

Exercise.—Describe the following oceans :—Pacific, Indian, Arctic.

2. A SEA.—State of what ocean it is a branch, and its position with respect to the country or countries whose coasts it washes.

Example.—The Red sea, a branch of the Indian ocean, lies between Arabia on the east, and Africa on the west.

Exercise.—Describe the following seas :—Adriatic, Mediterranean, Baltic, Behring, Yellow, Irish, Arabian, Levant, Ægean, Okhotsk, Japan, Wang-Hai, Tung-Hai, Chinese.

3. A GULF.—State of what body of water it is a branch, and its direction from the country or countries, whose coasts it washes.

Example.—The Gulf of Mexico, a branch of the Atlantic ocean, lies south of the United States, and east of Mexico.

Exercise.—Describe the Gulfs of California, St. Lawrence, Venezuela, St. George, Arica, Onega, Suez, Archangel, Obi, Tonquin, Siam, Aden, Carpentaria, Guinea.

4. A BAY.—Follow the rule for a Gulf.

Example.—Bay of Biscay, a branch of the Atlantic ocean, lies west of France and north of Spain.

Exercise.—Describe the following bays :—Fundy, Hudson, Chesapeake, Delaware, Bengal, Arnhem, Panama, All Saints.

5. A STRAIT.—State between what countries or islands it lies, and what bodies of water it connects.

Example.—The Strait of Florida, between Cuba and Florida, connects the Gulf of Mexico with the Atlantic ocean.

Exercise.—Describe the following straits :—Davis, Hudson, Bello Isle, Behring, Magellan, Le Maire, Skager-rack, Dover, Gibraltar, Otranto, Dardanelles, Constantinople, Bal-el-Mandeb, Malacca, Palk, Torres, Bass, Macassar, Sunda, Balabac, Juan-de-Fuca, La Perouse.

6. A CHANNEL.—Follow the rule for a strait, or gulf, according to the office which the channel performs.

Exercise.—Describe the following channels :—Yucatan, Mozambique, St. George's, Bristol, Corea, Fo Kien.

7. A LAKE.—State to what river-basin it belongs, its situation, and its outlet, if it has one.

Example.—Lake Ontario, in the basin of the St. Lawrence, lies between Ontario and New York state, and has the St. Lawrence for its outlet.

Exercise.—Describe the following lakes :—Winnipeg, Great Slave, Great Bear, Superior, Itasca, Leon, Okanagan, Onega, Ladoga, Constance, Geneva, Baikal, Koko-nor, Tale-Sab, Caspian, Aral, Albert, Victoria, Tanganyika, Nyassa, Bangweola, Eyre, Taupo.

8. A RIVER.—State the watershed to which it belongs, its source, its direction, and the body of water into which it flows.

Example.—The Mississippi river, in the watershed of the Gulf of Mexico, rises in Lake Itasca, in the state of Minnesota, and flows southward into the Gulf of Mexico.

Exercise.—Describe the following rivers :—Mackenzie, North Saskatchewan, St. Lawrence, Columbia, Fraser, Yukon, Orinoco, Amazon, Parana, Rhine, Rhone, Volga, Danube, Obi, Yenesei, Lena, Amoor, Hoang-Ho, Mekong, Yang-tse-Kiang, Brahmaputra, Ganges, Indus, Euphrates, Nile, Zambezi, Orange, Congo, Niger, Gambia, Senegal, Murray.

MONTHLY REPORTS.

The following form of monthly report which is in use in the Lindsay Public Schools, under the head mastership of Mr. W. F. Seymour, is given as a model which may be useful to teachers elsewhere :—

LINDSAY PUBLIC SCHOOLS.

Monthly Reports of..... *No*....., *in the*.....*Class,*

for the six months ending.....188 .

Month.	Perfect Recitations.	Marks from Written Examination.	Total Credits.	Half-days absent.	Times Late.	Misdemeanors.	Total Discredits.	Figure of Merit.	Standing in a class of.....	Name of Pupil who stands first this month.	Parent's Signature.

Teacher.....

W. F. SEYMOUR,
Head Master.

RECITATIONS.

BY D. A. M.

He who would succeed in any occupation must have correct ideas of what he wishes to accomplish. Aimless working produces useless results. It is not necessary that an observer should at once comprehend the purpose in each portion of the work but the workman should have in his mind a clear conception of what he wishes to produce, that all parts of his work may be properly adapted to each other. The more delicate the structure the more accurate should be the workman's understanding.

The moulding of the human mind is the most delicate work in which any person can engage, and yet how few workmen are thoroughly competent to undertake the task. The nature of mind is not understood and methods of culture, contrary to nature, are adopted haphazard, in the hope that somehow child mind will surmount all obstacles, and develop into a grand structure. Many do surmount these obstacles and attain excellency but by far the greater number are dwarfed. Of all existing workmen the teacher should thoroughly understand his work—other workmen build for time, but he builds for eternity. All parts of his work should have a definite purpose and should be so related to each other that there will be no misapplied labor. Probably there is more failure in conducting RECITATIONS than in any other part of the teacher's work. Owing to the short apprenticeship for, and the insecurity of, the the teachers position there are many who have no definite ideas of the aims of recitations, or at best there are acquainted with not more than two or three leading methods. Knowledge on the objects, conditions, principles and application of recitations should be very definite.

OBJECTS.

Among the objects to be kept before the mind, while conducting a recitation we may name the following:—(1) To ascertain the extent of the pupil's preparation.—If a teacher attempt to instruct a pupil without knowing how much he understands of the subject, he is likely to begin with that portion familiar to the pupil, and by not demanding thought tempt him to idleness, or else with that portion which is too difficult for him and thereby engender distaste for that particular subject and study in general. If pupils would be aroused to interest in study every additional fact given should be so related to what they already know that they can clearly comprehend it.

2. To aid in a more thorough understanding of the subject matter of the lesson. There are many who, considering this the only object of recitation lecture and explain away the lesson leaving the pupil nothing to do. If a pupil is to receive the greatest benefit from acquired knowledge there must be set up in his mind the same process of thought as was in the mind conceiving the idea. The pupil's advancement is measured more by what he does than by what he hears, therefore he should be told nothing directly that he can find out for himself. It is the teacher's duty to direct him in acquiring knowledge but the luxury of thinking and the glory of the conquest belong to the pupil.

3. To aid in cultivating memory. Since so much of the success in learning depends on memory, great consideration should be given to its cultivation. How many persons complain that they forget so easily. This is certain evidence of bad treatment unless there is some natural defect. If a subject has been properly learned there is no more necessity for forgetting it than for failing to understand it. The fact is that teachers are in too much hurry to get over a certain amount of work, and neglect to require their pupils to repeat what has been told them &c., hence facts and principles are disposed of so carelessly that responsibility does not rest anywhere. "It should, therefore, be the especial object of every recitation, to fix securely and permanently in the mind, every fact and principle of the lesson."

4. To cultivate the powers of expression to enable the pupil to tell intelligently what he knows. A pupil must possess language both to think and to express his thoughts. It is a notorious fact that pupils in general fail to express themselves accurately and clearly. It is not assuming too much to say that a pupil does not understand a subject properly unless he can express his thoughts clearly and accurately. "Teachers are too prone to take for granted that a child knows a thing, either because he pretends to, or thinks he does, or makes some halfway, blundering answer that may be tortured into a remote reference to the point in hand."

The manner is scarcely of less importance than the matter itself. Language is an instrument to be used all through life and should be well understood. It is the teacher's duty to afford time and opportunity for the cultivation of the expressive powers: in no place can this be done better than in the recitation, where we should call out the knowledge the pupil possesses in the best possible form of expression.

5. To measure the pupil's ability, acquired and natural, that the timid may be encouraged and the presumptuous checked. These two classes of pupils are found in every school and by bringing them together in the recitation they can measure each others ability and only those who really deserve special honors will receive them. If what the timid bring to the market be accepted at its full value they will be encouraged to try again—their success strengthens them. With some tact and consideration for his pupil's feelings a teacher can in a recitation do much to check pride and cultivate courage.

6. To afford opportunities for cultivating independence of thought on the part of the pupil. There are two evils to be guarded against—the one, blind adherence to books and customs, the other sitting aside all books and definitions. The one is rank conservatism the other rabid gritism. Both are destructive to healthy growth of mind. The one reduces pupils to the condition of mere machines the other inculcates rebellion against all established authority. If the teacher presents one, and that a sufficiently limited, point of thought to the pupil at a time, have these points follow each other in natural progression, go over the same ground again and again till a sufficient impression is made, bring together many examples of the same fact, apply the results of the instruction to the subject under consideration, pupils will arrive at conclusions and form definitions couched in clear and terse language. They will be encouraged in thinking independently, and as they may themselves express thoughts differently they will be led to respect each others' opinions and will be saved from being pedantic, self-conceited, and opinionated, or obsequious, stupid and parasitical. A pupil should never be prompted or assisted by a leading question, if he cannot answer the question given, go back to what he knows and socratically lead him to comprehend the fact sought to be elicited from him.

7. To enable the teacher to explain and illustrate the lesson and add new matter to it. Pupils attend school not merely to recite but to be instructed and aided by the living teacher. Never stop short with *hearing* a lesson, add something to it, talk about it. Professor J. H. Allen says "The moment you drop the thick veil which the text-book interposes between your pupil's mind and yours and deal with him face to face, you are in the right line and are doing the work of the great teachers of the world."

If left to himself a pupil may form very erroneous opinions, which by proper explanation and illustration the teacher can remove and by adding new matter to that already acquired he may arouse an intense interest in work.

8. To enable the teacher to keep proper incentives to study, before the pupils' minds. How pupils have been inspired with zeal in the acquisition of knowledge, by the mortification of one failure, every experienced teacher knows. Care should be exercised not to raise an artificial excitement which may perhaps secure better recitations but which will do nothing toward putting the mind into such a state that it will press on in the pursuit of knowledge after the living teacher has closed his labors.

9. To economize time. The method of individual recitation has been "weighed in the balance and found wanting"; but there are times and circumstances in the majority of schools requiring less or more of this practice. Not a moment should be lost. Although all the exercises should be conducted quietly yet energy and despatch should characterize every movement. Pupils should be taught to economize time for life is short, earnest and competitive. "The early bird gets the worm." So he who can economize time will succeed.

10. To enable the Teacher to present to his pupils correct ideas of the purposes of life. It rests with the teacher to imbue his pupils with noble thoughts, to inspire them with zeal in every good cause, to secure a fair and symmetrical development of their entire nature, and to avoid a one-sided and pernicious education. From history, biography; &c., he may teach them that the great purpose of life is to gain a pure character if they would gain happiness. A good reputation may give a transient joy, but in times of adversity pure character alone affords settled peace.

QUALITIES.

1. Recitation should be complete. There is a very common failure among teachers of all grades in this respect. Fragmentary and insufficient answers are very common. Which has the greater effect, a whole charge of powder or the tenth part of a charge? which contains the greater force a whole sentence or a half sentence; which will cultivate the mind the most, a part of a truth or the whole truth? The clearness, distinctness and completeness of utterance add to the clearness and comprehensiveness of the understanding. Every answer should be complete and should have some immediate connection with the question. Not a decimal point, or the most apparently insignificant sign or mark should be misunderstood. It would not do to say that $600 stood for six dollars. The most scrupulous care should be exercised to secure completeness, for "Whatever is worth doing is worth doing well."

2. Recitation should be definite and exact in the use of language. There is not sufficient care exercised in securing plain and precise answers; and pupils after a time think any answer will do. They may depend on manufacturing one, or of guessing one, by which they can slide along somehow. Indefiniteness in recitation squanders time and leaves the pupil possessed of a heterogeneous mass of facts which are of little service.

3. Recitation should be comprehensive both in understanding the matter and in making it as plain as possible. It is not uncommon to find pupils (not to say teachers) who have ciphered through the arithmetic or said all the grammar in the book, unable accurately to solve practical problems or to write or to speak correctly. Pupils should be taught to transfer the ideas from the book to the practical concerns of life.

4. A recitation should be logically arranged, what the pupil already knows being made the basis of what it is proposed to teach him. Isolated facts cannot be remembered or incorporated into the intellectual existence as well as if they are associated with ideas already fixed in the mind.

WHERE TO SPEND THE VACATION.

To the many readers of the JOURNAL who may be in doubt as to where to spend the vacation, we can confidently recommend Nova Scotia, and especially Yarmouth and vicinity, as a pleasant summer resort. The climate of Yarmouth is delightfully cool, such a thing as a sweltering day or sultry night being almost wholly unknown. There are beautiful drives, abundant facilities for fowling, boating, sea-bathing, and in fact everything that can contribute to the health and pleasure of the visitor. At Maitland Village, nine miles north of Yarmouth, there is an extensive sand beach, which many think quite equal to "Old Orchard Beach," where as fine sea-bathing can be had as the Atlantic coast supplies. Comfortable board and lodging can be had at Maitland for *four dollars* a week. By the new "Nova Scotia Steamship Company's" Line the tourist has a choice of two routes to Yarmouth (and thence to St. John, Halifax, etc.), one *via* Portland, which is 170 miles from Yarmouth, the other *via* Boston, 240 miles from Yarmouth. The steamer from Portland leaves every Friday at 1 p.m. on arrival of the Grand Trunk train from Toronto; and the Boston steamer leaves every Tuesday at 8 a.m. Mr. Oliver, Dr. McLellan, and others, spent last summer's vacation at Maitland, and we understand that quite a number of them are going to spend the coming vacation at the same place.

Notes and News.

ONTARIO.

T. O'Hagan, B.A., principal of the Chatham R. C. separate chool, spends his summer vacation this year in the Philadelphia school of Elocution.

Mr. A. W. Burt, of the Perth collegiate institute, passed his second year examination at Toronto university, with first-class honors, coming out first in History, French, and third in German. Mr. J. Balderson also passed his second year examination. Mr. I. J. Birchard gained the degree of M.A.

From the new calender of Victoria university we learn that the number of graduates in arts is 321; in law, 72; in divinity, 38. The number of students now in the arts faculty is 129; in law, 21; in science, 14; theology, 61; in medicine, 144.

The visiting committee of the Sarnia board of education report being well pleased with the management and efficiency of the schools under the jurisdiction of the board.

A matter was brought before the London school board lately which presented a somewhat novel feature. A note brought by a boy from his mother asking that he be excused from attendance was marked "not satisfactory." When the boy returned to school he was not taught for three weeks, though in the room. Mr. J. B. Boyle, I.P.S., sustained the teacher's action as the boy was virtually under suspension. Mr. J. M. Wilson, a trustee, thought that every teacher had a different system as regards excuses for non-attendance, and, "that complete humbug of a thing, the city teachers' association," ought to devise some general rule on the matter. It was referred to the committee of management.

W. W. Tamblyn, M.A., principal of Oshawa high school, has accepted his appointment by the board of education to a similar position in the high school, Bowmanville. We congratulate the people of that town and vicinity on having secured the services of one who is, by sound scholarship and long experience in teaching as well as by his genial disposition and his popularity with all who are interested in educational matters, so well qualified to maintain the present high reputation of the school. Mr. Tamblyn entered Toronto university at the age of sixteen, in 1862, and after winning many distinctions in the way of honors and scholarships, he graduated in 1866, a medalist in modern languages. After graduating he was, for six years, head master of Newcastle high school, and for the last ten years of Oshawa high school. He has raised Oshawa high school to a very high position, and by his labors there has proved himself to be one of the most successful teachers in Ontario.

At the recent meeting of the Perth county council, Mr. J. M. Moran, who has become editor and proprietor of the Stratford *Herald*, submitted his resignation as public school inspector for the south riding, adding his willingness to retain the office with the council's approval. Mr. Moran's resignation was accepted and applications were read for the position and referred to the education committee who recommended that the county be re-united for school inspection purposes, thereby saving a large amount and not prejudicing the interests of education, and that $200 extra be allowed the inspector for travelling expenses, in addition to the statutory allowance of $10 per school. The report was adopted. Mr. Alexander, inspector of the North Riding, signified his willingness to assume the duties for the whole county at the additional remuneration proposed, and a by-law was passed appointing him.

Public school inspector Kelly, M.D., LL.B., county of Brant, has been the recipient of a very valuable present from the teachers under his charge. It consisted of the *Encyclopædia Britannica*, most handsomely bound in several volumes, and a magnificent writing-desk and bookcase combined. The address which accompanied the gift is said to have been the most beautiful that has ever been presented to anyone in Brantford. It is richly and profusely ornamented, and is a triumph of the printer's and illuminator's art. The Mayor of the city presided at the presentation.

Mr. D. Jennings, who for the past ten years has been principal of the Uxbridge public school, has accepted the charge of a mission school in British Columbia, where his work will be chiefly among the Indian population. He undertakes this position through a high sense of Christian duty, and from his practical experience, well-known ability and unimpeachable character we are sure he will be the means of doing much good by promoting civilization through education and Christian teaching. He bears with him to his new sphere the best wishes of a numerous circle of friends; and, at a late meeting of the Ontario county teachers' association, a resolution expressive of the feelings of the members was unanimously adopted.

An east Middlesex (Ont) teacher, Mr. J. D. Hunt, has taken with him to Winnipeg, where he has recently accepted a position as teacher in one of the city schools, some refining influences that are much appreciated. School music and school room decoration were successfully practised by him in his Ontario school, and we find that in Winnipeg, through his precept and example, the Tonic sol-fa system of singing, and pictures, mottoes, flowers and illustrated magazines are prominent features in the schools of the Prairie city. As a rule the teachers of Ontario who go to other provinces or countries to occupy similar positions, soon make such improvements in their social surroundings that the neighborhood cannot help expressing gratitude. We receive in this way flattering accounts from the United States, British Columbia, Quebec and other places which bear testimony to the superior training and high culture of the teachers of Ontario.

H. B. McGregor, B.A., H.M., Brockville high school has, by unanimous vote of the board of education, been offered the head mastership of the Almonte high school. Previous to removing to Brockville, Mr. McGregor was for seven years principal of Almonte high school, and it is most flattering to him that, without application, the position was offered him under more favorable circumstances than heretofore, as they wish to get back again the teacher in whom they had so much confidence. He will return to Almonte on Sept. 1st. Clare Worrell, B.A., H. M. Gananoque high school takes Mr. McGregor's place in Brockville high school.

Hon. Adam Crooks, Minister of Education, when on a brief visit to Ottawa recently, stated that it is his intention to modify the intermediate examinations so as to discourage cramming and make them simple examinations for promotion. The list of optional subjects will be largely extended.

The degree of M.A. has been conferred by Mount Allison university New Brunswick, on Mr. H. E. Kennedy, head master of the Cayuga high school,

For some time past there has been a local controversy going on in the Hamilton papers about the condition of the collegiate institute in that city. The matter has at length been taken up by the school board and at this writing an inquisition is in progress.

MANITOBA.

A special meeting of the Protestant section of the board of education was held recently, when in addition to its decision regarding applicants for the position of teacher in the normal school department to be opened shortly in connection with the Winnipeg Protestant public schools, (see advertisement), the board decided that teachers for the collegiate department to be established in connection with the public schools in cities and towns must be graduates of some university in Her Majesty's dominions who furnish satisfactory evidence of their knowledge of the science of education and art of teaching and of the management and discipline of public schools together with a certificate of high moral character.

The books in French, Latin, and Greek required under standards xi & xii of the programme of studies for use in cities and towns were added to the list of authorized text books.

Mr. J. B. Somerset has been appointed a member of the board of examiners for the examination of teachers.

Mrs. Alfred Cowley has resigned the position of Lady principal of the St. John's college ladies' school, which she has filled with so much ability, and at some personal sacrifice during the last two terms. The vacancy has been filled by the appointment of Miss Sinclair.

The Ladies' college and the branch school connected with it are in a very satisfactory condition.

At a recent meeting of the council of the university of Manitoba the chancellor, on behalf of the committee appointed at the last meeting, presented the following minute relating to the late Rev. John Black, D.D., which was on motion of His Grace the Archbishop of St. Boniface, seconded by Rev. Canon O'Meara, unanimously adopted, viz:—The council of the university desires to put on record its affectionate regard for the late Dr. Black, of Kildonan. The Rev. Dr. Black was resident for many years in the country, and took a kind and active part in every public effort for education or charity. He was highly esteemed for his practical ability, sound sense, and sterling qualities, while he was beloved for his kindness of heart and courteous manner. He was a member of the council from the beginning, was constant in his attendance, and was known to take a warm interest in the welfare and progress of the university. His loss is therefore deeply regretted.

The tonic sol-fa music notation is being introduced in the Winnipeg public and high schools, and after vacation will be taught in all the rooms. Mr. J. D. Hunt, principal of the high school, adopted the method in his room, with favorable results, some time ago.

NOVA SCOTIA.

A new chair has been established in Dalhousie college through the munificence of Mr. George Munro, of New York. The chair is to be known as the George Munro chair of English literature and metaphysics. At a meeting of the Governors held since the generous founder announced his intention to establish the chair, J. G. Schurman, A.M., D.Sc., was chosen professor on the new foundation. The salary attached to the professorship is $2000 per annum, with class fees additional.

Mr. Walter Smith, State director of art education in Massachusetts, and art master, South Kensington, England, has been invited to attend the ensuing Provincial education association at Truro. Prof. Smith has accepted the invitation and will deliver three lectures before that body. It is expected that he will lecture in Halifax also.

Mr. R. I. Eaton, second master in the Morris street school, Halifax, has been obliged to resign through ill-health. Johnson Davidson, B.A. (Dalhousie College), has been elected to the position thus vacated.

The third annual session of the teachers' association for inspectoral district, No. 10 (Cumberland and North Colchester), was held at Parrsboro on the 15th and 16th ult. W. D. Mackenzie, inspector of schools, presided at the various sessions, supported by Mr. W. D. Ward as vice-president, and Mr. Gordon Hill as secretary-treasurer. Seventy-five teachers were present and enrolled as members. As this was the first meeting of the kind ever held in Parrsboro, much public interest was taken in the proceedings of the association by the people of the town. The association reciprocated by placing on record an expression of its appreciation of the kindness shown to its members by the residents of Parrsboro. In addition to papers and exercises by members of the association, the teachers present were favored with a most instructive address by Principal Calkin of the provincial normal school on the subject of "Method." The public meeting held on the evening of the 15th, attracted to the immense town-hall, what is said to have been the largest audience gathered in Parrsboro for many years. The chief address of the occasion was delivered by Dr. Allison, superintendent of education. This was an earnest plea to sustain by all means and at all costs an education in sympathy with the spirit of the times, and adapted to place the youth of Nova Scotia on a par with the youth of the most favored and progressive lands. The leading men of the town occupied places on the platform. A most cordial vote of thanks to the lecturer was moved by Rev. Mr. Alcorn, and seconded by Rev. Father Malone, P. P. The programme of the association was a fresh and varied one, and was capitally carried out. It included papers as follows: "Miscellaneous schools and their special difficulties," by Mr. E. J. Lay, Amherst; "School government," by Mr. Gordon Hill, Central Economy; "Subtraction," specially illustrated by Miss Bent, Amherst; "Physical geography," by Mr. Wm. Rockwell, Joggins Mines; "Teaching the elementary principles of geology," by inspector Mackenzie. Mr. Johnson, principal of the Parrsboro schools, gave a brief address on the "Utility of Drawing" as a branch of public instruction, admirably supplemented by a class exercise with pupils from his school. Miss Gillespie, Parrsboro, gave a highly interesting exercise in reading, and Miss McKernian, Amherst, an equally useful one illustrating the philosophy of division. It should be mentioned that Mrs. Huestis of St. John, N.B., a member of the Natural History Society of that city, favored the association with valuable suggestions on the teaching of botany, and with the inspection of her beautiful collection of botanical and entomological specimens. The subjects brought before the association in the papers presented were discussed with great freedom and vigor. The next annual meeting was appointed to be held at the village of Acadian Iron Mines, Colchester county, on the second Thursday of June, 1883.

The anniversary of Acadia college was celebrated at Wolfville, N. S., on the 31st May. The gathering was a brilliant one. The most interesting part of the celebration was its Cramp memorial service, at which a series of orations were delivered by Dr. Sawyer, Dr. Bell, Dr. Rand and Mr. A. Langley. We note that Hon. Neil McLeod, B.A., has been appointed a scholar of the university of Acadia college.

TORONTO UNIVERSITY COMMENCEMENT.

The proceedings in connection with the close of the late academical year of the university of Toronto came off on the 7th and 8th of June. The evening of the 7th was devoted to the annual meeting of

CONVOCATION.

which was held in Moss Hall, the home of the Literary and Scientific society of University college. The attendance was not large but the list of those present included a number of men prominent in literary, scientific, and educational circles. The chair was occupied by the Hon. John A. Boyd, chancellor of Ontario, who was re-elected for another biennial term. A considerable portion of the time of the meeting was taken up with the discussion of the question whether the Senate should insist absolutely on attendance on one year's lectures in some affiliated college, and that not the first year's. It was finally resolved by the casting vote of the chairman that no recommendation on the subject should be made. On motion a large and influential committee, with power to add to its numbers, was appointed to consider and report upon the best means of improving the financial condition and increasing the efficiency of Toronto university and University college. Of this committee the vice-chancellor of the university, W. Mulock, M.A., was nominated convener, and amongst its members are the Hon. Edward Blake, chancellor of the university and the Hon. J. A, Boyd, chairman of Convocation.

COMMENCEMENT.

The annual commencement proceedings came off in Convocation Hall on the afternoon of the 8th, the chancellor presiding. The following is a list of the art graduates, and medallists of the year:—

M. A.—J. J. Baker; I. J. Birchard; E. R. Cameron; T. Davidson; C. Donovan; A. Hamilton; W. A. Huston: F. H. Keefer; A. G. Leonard; T. H. Lyall; J. P. McMurrich; J. Mutch; W. G. Wallace.

B. A.—A. F. Ames, Cainville; J. Baird, Scarboro; A. Blair, Ratho; W. H. Blake, Toronto; C. J. Campbell; Toronto; J. Caven, Toronto J. M. Clark, St. Mary's; L. J. Clarke, Winnipeg; L. C. Corbett, Corbett; W. F. W. Creelman, Collingwood: W. A. Duncan, Russell; H. L. Dunn, Welland; J. C. Elliot, Port Robinson: W. Elliot, Morewood; W. T. Evans, Waterdown; D. Fasken, Elora; W. O. Galloway, Toronto; C. T. Glass, London; E. G. Graham, Brampton; J. Gray, Woodburn; A. H Gross, Whitby; W. J. Greig, Oshawa; J. F. Grierson, Oshawa; E. F. Gunther, Toronto; R. Haddow, Dalhousie, N B; T. P. Hall, Hornby; J. Hamilton, Motherwell; T. Hepburn, ———; J. A. Jaffray, Macville; D. B. Kerr, Toronto; G. G. Lindsay, Toronto; W. J. Logie, London: S. Love, Toronto; G. S. MacDonald, Cornwall; J. McGillivray, Collingwood; A. MacMurchy, Toronto; C. A. Mayberry, Salford; C. J. McCabe, A. McDonald, Toronto; A. H. McDougall, Cannington; D. McGillivray, Goderich; R. McKnight. H. W. Mickle, Toronto; R. Moir, Hensall; J. W. Mustard, Uxbridge; A. E. O'Meara, Port Hope; S. E. Robertson, Harriston; W. L. H. Rowand, Walkerton; O. L. Schmidt, Sebringville; A. Y. Scott, Stratford; T. W. Simpson, Orangeville; G. A. Smith, Winthrop; J. Smith. J. C. Smith, Galt; T. Trotter, Woodstock; F. C. Wade, Owen Sound; A. Watson. G. B. Wiltsie, Farmersville; D. J. G. Wishart, Madoc; H. Wissler, Salem; H. J. Wright, Toronto;

The following is a list of the medallists in the various faculties:

ARTS—*Classics*: Gold, D. McGillivray (Goderich); silver, H. L. Dunn (Welland);—*Mathematics*: Gold, J. M. Clark (St. Mary's); silver, A. F. Ames (Cainsville);—*Modern Languages*: Gold, H. J. Wright (Toronto); silver, E. F. Gunther (Toronto);—*Natural Sciences*: Gold, G. A. Smith (Winthrop): silver, T. P. Hall (Hornby);—*Mental and Moral Philosophy*: Gold, W. F. W. Creelman (Nova Scotia); silver, W. H. Blake (Toronto).

LAW—Gold, A. V. McCleneghan.

MEDICINE—University gold, R. R. Wallace; University silver, J. T. Duncan; Starr gold, R. R. Wallace.

The following is a list of the successful candidates for scholarships in the various faculties:

LAW.—Second year—A. S. Lown; Third year—F. T. Congdon.

MEDICINE.—First year—1, H. N. Hoople; 2, L. Carr. Second year—1, J. W. Clerke; 2, A. F. McKenzie. Third year—1. W. J. Robinson; 2, F. J. Dolsen.

ARTS.—*Classics*—First year—1, H. Haviland; 2, W. M. Logan and J. Ross; Second year—1, W. J. J. Twohey; 2, R. A. Little; Third year—1, J. C. Robertson; 2, A. Crichton and H. R. Fairclough. *Mathematics*—First year—1. R A Thompson; 2. A. C. McKay; Second year—1, J. Cuthbert; 2, M. Haight; Third

year—1, G. Ross; 2, T. G. Campbell. *Modern Languages*—First year—F. H. Sykes; Second year—W. H. Smith; Third year—J. Squair. *Mental and Moral Science*—Second year—G. Sale; Third year—J. S. Campbell. *Blake Scholarship*—W. S. Ormiston. *General Proficiency*—First year—1, Heber J. Hamilton; 2, G. Hunter; Second year—1, T. C. Robinette; 2, W. G. Milligan.

The following are the prizemen for the year:

French Prose—J. Squair. *German Prose*—J. Squair. *Oriental Languages*—First year—G. Sale; Second year—J. R. Stillwell; Third Year—J. A. Jaffary; Fourth Year—J. Hamilton.

The proceedings of the afternoon closed with an address from the chancellor in the course of which he explained the steps taken recently by the Senate with a view to adding to the teaching power of University college by the creation of fellowships and lectureships, and gave some useful practical advice on educational matters in general.

THE ANNUAL DINNER.

came off in the evening in the college dining hall, Dr. Wilson, president of University college presiding. The speeches were more purely academical in tone than speeches on such occasions generally are and this feature contributed not a little to the success of the reunion. The speech of the Rev. Principal Grant of Queen's college was especially outspoken and vigorous in its protest against small college endowments and it won for him frequent applause.

OTTAWA UNIVFRSITY CLOSING EXERCISES.

The proceedings in connection with the close of the late session of this institution aroused this year more than the usual amount of public interest. Ottawa university is under the auspices of the Roman Catholic Church, but on the platform on graduation day a number of persons prominently connected with educational work were present, inclnding Principal McCabe of the Ottawa normal school, Principal McMillan of the Ottawa collegiate institute. and Dr. Baptie, science master in the normal school. A practical address was delivered by Dr. Phelan, professor of anotomy in Kingston medical school, and an *alumnus* of Ottawa university. An address was delivered in French by the Rev. President of the institution. The degree of B. A. was conferred on Francis B. Latchfor of Ottawa and T. O'Hagan, principal of the Chatham R. C. separate school. The degree of Bachelor of Literature was conferred on several candidates, and the degree of M. A. on Dr. Phelan, Prof. Denyden, and Prof. Marson. To Mr. O'Hagan fell the distinguished honour of reading the salutatory poem with the appropriate title "Profecturi Salutamus."

MANITOBA UNIVERSITY CONVOCATION.

The meeting of the convocation of this university for the conferring of degrees was held at Winnipeg on the 21st of June, the following gentlemen connected with the institution being present:—The Most Reverend, the Bishop of Rupert's Land, chancellor, in the chair; Hon. Joseph Royal, M.P., vice-chancellor; Mr. T. A. Bernier, registrar; Rev. Dr. Lavoie, Rev. Prof. Cherrier, Rev. G. Dugast, Ven. Archdeacon Cowly, Ven. Archdeacon Pinkham, Rev. Canon Matheson, Rev. Prof. Hart, Rev. O. Fortin, Rev. R. Young, Hon. A. A. C. LaRiviere provincial secretary; Mr. Macarthur, and others. A considerable number of ladies occupied seats on the floor of the house and there was a fair attendance of gentlemen interested in the educational work of the province.

The chancellor in the course of his address stated that 33 candidates had come up for examination, and that all these had come from the colleges affiliated to the university. It was expected that no fewer than 18 candidates would enter on the university course next year. He referred to some of the questions requiring the attention of the council of the university, amongst other things there was needed a more precise definition of the mathematical subjects for examination, especially for honor candidates. The relation of women to the university examinations required to be defined, and the question of granting other than arts degrees had become important. The university was not yet well equipped with funds, the work of examination having been done gratuitously. He complimented the colleges on their growing efficiency and avowed his preference for giving government aid to the university, but though something might be done for the colleges as well. The graduates from St. John's college were presented to the chancellor for their degrees by Rev. Canon Matheson, who also, in the unavoidable absence of Rev. Prof. Hart at this particular stage of the proceedings, presented the graduates of Manitoba college for similar honors.

Rev. Prof. Cherrier next presented the graduates from St. Boniface college, who in their turn were admitted as bachelors in arts.

The following students having been thus presented by their colleges were admitted by the chancellor to the degree of B.A. in the usual form:—James Mackay, St. John's college; R. G. McBeth, Manitoba college; T. Warburton, St. John's college; D. J. Tait, St. John's college; Neil Maccallum, Manitoba college; G. Albert Betourney, St. Boniface college; A. M. Campbell, Manitoba college; R. R. Sutherland, Manitoba college.

The chancellor also presented to the medalists the distinctions to which they were entitled.

The registrar, Mr. T. A. Bernier, presented to the chancellor the candidates for *ad eundem* degrees. The following, who were present, came forward and were admitted by the chancellor in due form:—

T. C. L. Armstrong, M.A., university of Toronto. Jacob Bureau, LL.B., university of Laval, Quebec. Rev. H. T. Lesile, B.A., Trinity college, Toronto. J. F. Landry, M.D., B.A., Laval university, Quebec. J. E. P. Prendergast, B.A., LL.D., Laval university, Quebec. G. G. Mills, B.A., Victoria university, Cobourg. A. Dawson, M.A., university of Toronto. C. Sifton, B.A., Victoria university, Cobourg. The following candidates, who were not present, were also admitted, *ad eundem gradum*:—S. J. McKee, B.A., university of Toronto. Richmond Shafner, B.A., university of Acadia, N. S. Paulus Cherard, B. A., university of Laval, Quebec, Edwin L. Bayington, M.A., Victoria university, Cobourg.

Mr. J. Mackay of St. John's college was awarded the Governor-General's silver medal for classics, and Mr. R. G. McBelt of Manitoba college the university bronze medal. Mr. G. A. Betourney of St. Boniface college was awarded a silver medal for moral and mental science, and French course, M. A. Campbell of Manitoba college was also awarded a silver medal for the English course in the same department. Mr. J. A. McKay won the Governor-General's bronze medal at the previous examination for proficiency in classics, mathematics, and botany.

ACADIA COLLEGE—CLOSING EXERCISES.

The anniversary exercises of Acadia college were held on Thursday, June 1st and were of more than usual interest. The spacious assembly hall of the college was crowded with a brilliant audience. The orations of the graduating class were as follows:—England socially under the Tudors—Ernest A. Corey, Havelock, N.B. The problem of Russia—Rupert W. Dodge, Kentville. The Indians of Canada, their present and future—Snow P. Cook, Milton, Queens Co. The making of the English Bible—Frederic D. Shaffner, Williamston. The love of nature in Latin poetry—Arthur G. Troop, Dartmouth. English puritanism—Arthur L. Calhoun, Summerside, P. E. I. Daniel Webster—Herbert W. Moore, Portland, N. B. Ancient and modern cosmogonies—F. Howard Schofield, Black River.

After the delivery of the orations the conferring of the degree of Bachelor of Arts on the graduates took place as follows:—Ernest A. Corey, Havelock, N. B. Rupert W. Dodge, Kentville. Snow P. Cook, Milton, Queens Co. Frederic L. Shaffner, Williamston. Arthur. G. Troop, Cartmouth. Arthur L. Calhoun, Summerside. Herbert W. Moore, Portland, N. B. F. Howard Schofield, Black River. J. G. A. Belyea, Portland, St. John, *in absentia.*

President Sawyer then announced the following honorary degrees: On Rev. E. M. Saunders, Doctor of Divinity. On Hon Sir. Charles Tupper, and Hon. Dr. Parker, Doctor of Civil Law. On Prof. D. F. Higgins, Doctor of Philosophy. On C. W. Roscoe, (inspector of schools for Kings and Hants counties), Master of Arts, *causa honoris.* These announcements were received with demonstrations of applause. Dr. Saunders, Dr. Higgins, and inspector Roscoe in response to an invitation from president Sawyer briefly addressed the meeting in acknowledgment of the honor conferred upon them respectively.

The president also announced that the governors of the university had at their recent meetings decided upon more fully availing themselves of the privileges allowed them under the college charter and act of incorporation, and in pursuance of such decision had appointed six fellows and twelve scholars to be associated with and become a portion of the governing body of the university of Acadia college. The following are the names of the gentlemen appointed:—*Fellows*—T. H. Rand, D. C. L.; Rev. D. A. Steele, M. A., Rev. Dr. Saunders, Judge Johnston, Silas Alward, Esq., M. A., and Rev. S. B. Kempton, M. A. *Scholars*—Rev. A. Cohoon, M.A.; J. Parsons, B.A.; Rev. G. O. Gates, M.A.; H. C. Creed, M. A.; Hon. Neil

McLeod, B.A.; J. Y. Payzant, M.A.; B. H. Eaton, M.A.; Rev. Dr. Hopper, Rev. W. H. Warren, M.A.; J. A. Durkee, M.A.

The place of the customary oration before the associated alumni was this year filled by a most appropriate service commemorative of the life and labors of Dr. Cramp, ex-president of the college. Eloquent and appreciative addresses were delivered by the following gentlemen:—Rev. Dr. Sawyer on the "General history of the deceased scholar;" Rev. Dr. Bill, on "Dr. Cramp as a preacher;" T. H. Rand, D.C.L., on "Dr. Cramp as a teacher;" A. Langley, on "Dr. Cramp as a temperance worker."

The annual dinner of the associated alumni was a brilliant occasion. Toasts were given and responded to as fellows:—"The faculty of Acadia college." Responded to by Dr. Sawyer and Dr. Higgins. "The graduating class of 1882." Responded to by H. W. Moore, B.A. "The governors of Acadia." Responded to by B. H. Eaton, M.A. "The fellows and scholars." Responded to by Rev. W. H. Warren, M.A. D. B. Woodworth was called for by some friend, and in response spoke eloquently on the Great North West—Manitoba. "Our sister colleges." Responded to by Prof. Forrest, of Dalhousie college, and Dr. Hall of the normal school at Truro. "The Press." Responded to by Rev. R. Murray, of the *Presbyterian Witness*, and S. Selden, of the *Christian Messenger*. "Visiting friends." Responded to by Dr. Willard, of Providence, R.I., a teacher of forty years ago in Horton academy. "The ladies' seminary," spoken to by Rev. G. F. Miles.

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

N. SIMCOE.—Held in the model school, Barrie, on the 9th and 10th June. The attendance was large, the programme well supported, and the several subjects received such an amount of good practical criticism that much important information was elicited. Shortly after 10 a.m. the proceedings were opened by J. C. Morgan, M.A., I.P.S., president, who stated that while he thought the convention should be held on two teaching days, and intended to carry out his view on future occasions, he had good reasons for the change this time, as it enabled him to obtain the invaluable services of Mr. J. L. Hughes for the public lecture, and an address at regular session. The minutes of previous meeting were read by Mr. J. B. Carruthers, sec-treas. and adopted. Mr. D. Finlayson showed how he would teach grammar to a class preparing for entrance examination. Mr. H. B. Spotton, M.A., thought common errors of false syntax should be noted and corrections made; if such were given in the text-book it would be a great advantage. Messrs. Hunter, Harvey, McKee, and others, continued an advantageous discussion on the subject. Roll was then called, after which Mr. W. Finney gave an exposition of the several methods of teaching vocal music which, he maintained, should be taught in the public school. He commended the tonic sol-fa as the most easily acquired and satisfactory in result. H. B. Spotton, M.A., H.M., Barrie coll. inst., gave a very interesting and able address on the "The future of the intermediate examination." He had heard it said that "the track of the intermediate examination is marked by the whitened bones of the candidates" through the failure of so many to pass. The presence of a large number at these examinations may be accounted for by the fact that a result's fee of about sixty dollars was secured to the school for every candidate who passed. The objections were that the schools were turned into "education mills" to the mental injury of the pupil; the continual strain upon the teacher was injurious to health and many had to give it up; the teacher's abilities were often judged by the number whom he succeeded in passing, and he often unjustly suffered thereby. It is frequently difficult to get pupils to go up for examination, especially as passing is only an honor which counts for nothing in the professions except that of teaching; pupils would willingly forego this honor but they were urged to it for the sake of the fee. Bonuses were offered by teachers to draw away pupils from the schools of their own counties, which was the most unpleasant feature in the matter. Some schools had sent out advertising agents to "show their wares" and draw away pupils from good schools. On the other side of the question the condition of the high schools is enormously improved. Mr. Spotton criticised the marking at the last examination showing some anomalies that obtained. The present difficulty in the high school is how to manage the arrangement of classes so as to separate those preparing for teachers from those who are not candidates for examination. He read from Dr. McLellan's report recommending that there should be a distinction made; and he (the speaker) would urge a distinct class for botany, chemistry, and physiology. On the motion of Mr. Harris, seconded by Mr. Hunter, a committee was appointed consisting of Messrs. Spotton, M.A., Williams, B.A., and Ryerson, B.A., representing the high schools, and Messrs. Harvey, McKee, and Waugh representing the public schools, to embody the recommendations made by Mr. Spotton and to bring in a report. Mr. T. Young gave a prelection on the "Importance of history" and the objects to be kept in view in teaching it. The matter was wisely dealt with and a very practical discussion ensued. The president would agree to have history taught to children if the first two letters of the word were deleted and it became "story." Mr. G. McKinnell read an essay on book-keeping which was well criticised by Messrs. Finney, Harvey, Jenison, and Furlong, and on the motion of Mr. Harvey a committee consisting of Messrs. McKinnell, Jenison, and Furlong was appointed to consider the place it should occupy in public schools, and to report. Mr. Johnston read a short paper on "Composition" which opened up a most profitable discussion on the subject, in which Mr. McKee of Orillia gave some admirable hints, and Messrs. Finney, Jenison, Sneath, and Hume took part. Mr. Little's paper on "Elementary arithmetic" was rather more prolix than the subject warranted and presented no debatable points. The report of the committee on book-keeping was postponed till next convention. Mr. D. Boyle, representing the Canada Publishing Co., addressed the association on the merits of the series of readers to be published by that house, and Mr. J. L. Robertson, from the firm of W. J. Gage & Co., exhibited a set of new Canadian readers and pointed out the many features of excellence the books possess. On the motion of Mr. Spotton, seconded by Mr. Williams, a committee was appointed to examine these series and report at next convention. In the evening an appreciative audience assembled in the Town Hall to enjoy a lecture given by J. L. Hughes Esq., inspector of schools, Toronto, on "Schoolroom humor." The chair was occupied by the president of the association, and at the close of an address in which the lights and shadows of school life were inimitably and graphically depicted, the talented lecturer was, on the motion of Mr. Harvey, seconded by Mr. Jenison, accorded the thanks of the meeting by rising vote and acclamation. *Second Day.* After roll-call Mr. Hughes showed how drawing could be made a useful and pleasant branch of public school study, which made such an impression on the meeting that Mr. Sneath proposed, Mr. Hume seconded, and it was unanimously resolved, "That when the school of art is established in the normal school, Toronto, the teachers in training be instructed in the principles of drawing." Mr. Spotton brought in committee report as follows:—"That this association desires to express its strong approval of the proposal to separate the intermediate examination from the public school teachers' examination, to restore the intermediate to its original position as a promotion examination, and to give greater flexibility to the course of students by the introduction of an optional group comprising botany, chemistry, and physiology; and this association is also of opinion, that, in order to obviate the evil of cramming for teachers' examinations, a minimum period of preparation, say two years after completing the work of the fifth class in public schools, should be insisted on." The importance of individual study of educational works and the benefit arising from the discussion of their subject matter at the semi-annual meetings was brought before the notice of the association and a committee was appointed to report, which they did as follows:—"Your committee appointed to recommend an educational work for study between now and the next convention beg to recommend Park's Manual of Methods as a suitable work for the purpose in view. They also recommend that the circulars issued by Stieger & Co. in reference to the kindergarten be sent for, so that the members of the association may obtain some knowledge of the working of that system." J. M. Hunter, M.A., presented the report and moved its adoption; it was seconded by Mr. Sneath and carried. Miss C. Lafferty, Orillia public school, with a second class brought from her own school, exemplified her method of teaching reading. If results are the best proof of a method Miss Lafferty's is singularly successful, for the little ones read with a fluency, modulation and general intelligence that reflected the highest credit on her system, and their neat appearance did honor to their town. Her plan is to read a passage first herself, and get the children to underline emphasized words, then to read simultaneously; this is done as a preparation. Next day the pupils make their own corrections in style, pronunciation and inflection. Mr. Hughes complimented Miss Lafferty highly on her success, and several of the teachers present expressed their gratification at giving them such an admirable plan to follow up in their own schools. Messrs. Jenison and Neil Campbell were appointed auditors. The financial report was read which showed a balance to credit of $20.10; passed. The president vacated the chair and proposed a hearty vote of thanks to Mr. Hughes for his valuable assistance; seconded by Mr. Sneath and carried with applause. The election of officers resulted as follows:—President, J. C. Morgan, M. A., I.P.S.; vice-pres., J. M. Hunter, M.A.; sec.-treas., J. B. Carruthers; managing com., Miss Lafferty, Messrs. G. Sneath, Young, Campbell, and KcKee. Delegates to provincial association Messrs. Harvey, Hunter, and Sneath. After a few eloquent words of encouragement from the president, and the transaction of some routine business, the convention adjourned to meet next time in Orillia.

NORTH HURON.—The regular semi-annual meeting of this association was held in the central school, Brussels, on Thursday and Friday, May 25th and 26th. In the absence of the president, Mr. John Shaw of Brussels occupied the chair while Mr. Malcolm Black officiated as secretary. Mr. Sparling's essay on "Self Culture of Teachers," was evidently the work of considerable thought, pointing out clearly that teachers, when once they have obtained their certificates, should not rest upon their oars, but keep themselves thoroughly posted on current events, and improve their mental status by a liberal perusal of choice works. Mr. J. L. Robertson, representative of Messrs, W. J. Gage & Co., addressed the meeting on the subject of reading b ooks. He exhibited a new series by Messrs. Gage & Co., which for choice selection, artistic finish, and general excellence far surpasses anything we have ever seen. A committee composed of Messrs. Dewar, Duff, Henderson, McKay and Shaw, brought in the following report on this series which was unanimously adopted:—"We are of opinion that notwithstanding the annoyance to parents arising from a change of text books, our present readers owing to their many defects should be superseded by a more desirable series as soon as they can be judiciously introduced. Having carefully examined the series of readers published by Messrs. Gage & Co., we can heartily recommend them as in every way superior to the series now in use, and we believe that their introduction into the schools of the country would be a decided benefit." (Signed) Arch. Dewar, I. P. S.; John Shaw, H. M. Brussels central school; R. Henderson; H. M. Blyth P. S.; W. G. Duff; H. M. Roxboro P. S.; A. M. McKay, H. M. Cranbrook P. S. Mr. Henderson read an interesting essay on "How to cultivate literary taste in schools." Mr. Robertson's exemplification of the "Tonic sol-fa system" was well received. In the evening a public entertainment was given in the Town Hall. The feature of the evening was Mr. Robertson's address on the "Work and care of teachers." Messrs. Duff and Robertson each gave songs, and Messrs Wallis and Stewart and Miss Reinhart, readings. Mr. Sparling again read his essay on "Self culture of teachers." On Friday Mr. W. E. Groves gave a short discourse on "Practical arithmetic," which brought on a brief and interesting discussion. Mr Robertson, of Toronto, addressed the teachers on the subject of "Reading." He first pointed out the great importance of this subject, as through it we derive our knowledge of all the sciences. He gave a humorous description of the old method of teaching the alphabet, and illustrated by blackboard illustrations the most approved methods of teaching the subject. He gave some amusing examples of the sing-song method of reading, and pointed out many of the errors into which teachers and others fall in teaching and practising reading. He advised a sparing use of simultaneous reading in schools, and showed how an interesting exercise might be made out of word-building. Mr. Robertson was listened to with rapt attention while delivering his address. On concluding, Mr. Robertson was tendered the thanks of the association for his able address. The valedictory of late secretary-treasurer, Mr. A. M. Taylor, was read before the association, after which a vote of thanks to Mr. Taylor was moved by Mr. Dewar, seconded by Mr. Duff. It was also moved and seconded by the same that the valedictory with the permission of Mr. Taylor, be published. A resolution of condolence to the family of the late James Hartly Esq. McKillop, was adopted and the secretary instructed to forward same to Mrs Hartly. Also a resolution congratulating the late sec. treas. Mr. A. M. Taylor on his appointment to the head mastership of Ingersoll central school, was adopted. Mr. Dewar, I.P.S., addressed the teachers on the question "Is the cultivation of morals sufficiently attended to in the public schools?" He pointed out the most prevalent faults common among pupils in the public schools, such as rudeness of manner and speech, copying, prompting, &c., and showed that the indulgence of these habits in youth depraved the morals and destroyed self-reliance, which is an important factor in forming good moral character. Mr. Dewar's remarks were pointed and forcible. He also referred to the negligence of some teachers in making out the annual and semi-annual reports. The election of officers was next called for and resulted as follows: President Mr. R. Henderson, Blyth; vice president, Mr. W. Duff, Roxboro; sec. treas. Mr. W. E. Groves, Wingham. Mr. Ferguson of Wingham, was appointed delegate to provincial association in Toronto. Messrs. W. T. Bray and Dr. McDonald, Wingham were appointed auditors. The meeting then adjourned to meet again in Seaforth in early autumn.

EAST GREY.—The semi annual meeting of the East Grey teachers' association was held at Meaford on the 25th and 26th ult. Nearly all the teachers in the division, and also trustees and others were present. The president, Mr. M. Mackinnon of Meaford, presided. Routine business was first proceeded with. After the reading of the minutes of the previous meeting by the secretary, Mr. Farewell, Messrs. Grier and Henderson were appointed delegates to the annual convention of the Ontario teachers' association. The president explained the reason for the absence of Mr. G. W. Ross, and stated that it was impossible owing to other engagements on the same days, for the publishers of the CANADA SCHOOL JOURNAL to send a representative to the present meeting. He spoke of the excellence of the JOURNAL, and thought it would be well for the association to consider whether each member should be supplied with a copy out of the association funds. It was then decided that each paying member should receive a copy from the association. The regular programme was then proceeded with. The president delivered an address on "The Bible in the public school." He believed the Bible should be read in our schools, but saw serious objections to its use as a text-book. He was afraid its introduction as a text-book would cause less reverence for the Word, lead to denominational teaching, and seriously impair the working of our admirable school system. The main agents in religious teaching must be ministers, sabbath school teachers, and above all parents themselves. Mr. John Whyte then explained his method of teaching "Dictation." Mr. A. Grier, inspector, discussed "School law," and dwelt especially on the changes made at the recent session of parliament. Mr. George Lindsay read a paper on "Superannuation." He disapproved of the sliding scale system of payment which he characterized as iniquitous, and in the interests of the well paid teachers of the towns and cities. According to this system, he said, pensions would not be given according to services rendered, but money paid—an unheard-of thing. No action was taken as the Association had disposed of the matter at a previous meeting. Mr. Henderson with the aid of the blackboard explained his method of teaching "Music." He thought that music should be taught in all our schools, and said by a little attention every teacher would be able to teach it. Rev. Mr. Clark in his address on, "Memories of Dr. Ryerson," dwelt mostly on the great educational services of the Reverend Doctor. He set him up as an example to young men of what industry, perseverance, and moral rectitude can accomplish. An excellent essay on "Home training," was read by Rev. Mr. Johnston. He spoke of the importance of good early training, and pointed out the many mistakes made by parents. Mr. Jas. McMillan discussed "Practical education." He thought much of school study was useless save as a mental exercise. He recommended more attention to Botany and other sciences. Rev. Mr. Large read a paper on "Fictitious Reading," showing the evils of so much light frivolous reading, and the importance of improving time by the reading of what is useful and practical. The discussions which followed the introduction of each subject were interesting and profitable. The entertainment on the evening of the first day was a decided success. The cornet band with the aid of Mr. Kelly, a noted vocalist, and others, made a pleasant and enjoyable evening.

NORTH YORK.—The teachers of North York convened at Newmarket on the 26th and 27th of May. The minutes of the previous evening were, after a slight correction, approved. Miss Birnie of Newmarket model school, was called on to teach a class of children to spell. Her method was good, but provoked considerable criticism, some teachers thinking time could be saved by spelling orally instead of adopting her method of writing. The subject of uniform promotion examination was then discussed. It was thought a desirable plan, and a committee was named to collect information and to lay a plan before the convention at its next meeting. Mr. Armstrong, head master of Aurora school, took up his subject, "How to teach composition in school." He spoke of the value of the knowledge and the disgrace attending the lack of knowledge of this important branch. He thought the subject should be commenced in the lowest classes and continued to the higher grades. The convention agreed that it was injurious to assign such subjects as "Ambition," "Virtue," &c., &c., to pupils for composition as their minds was not able to grasp them thoroughly. The nominating committee reported at this stage and the following persons were elected to office:—Mr. Fotheringham, inspector, president; Mr. J. E. Dickson, H. S. M., vice-president; Mr. W. F. Moore, principal of Nobleton school, 2nd vice president; Mr. S. E. Jewitt, secretary and treasurer; Miss Annie Birnie of Newmarket, librarian; Messrs. Rannie, Armstrong, Holland, MacPherson, and Stone, managing committee. Professor Hunt-man was present and gave a very interesting lecture on the phonic method of reading. A vote of thanks was tendered to him. Mr. W. F. Moore read an excellent essay on "How to secure the co-operation of the pupils." Messrs. Dickson, Moore and Rose were appointed to draft a memorial of regret on Dr. Ryerson's death. Mr. Love sang the "English Lion" with good effect. Mr. Marton of Newmarket high school, illustrated his method of teaching decimal fractions. Mr. Marton seems to be master of his subject (mathematics) and deserved the vote of thanks that was tendered to him. At the evening session Mr. W. F. Moore, sang Tennyson's new song "Hands all round;" Miss Birnie rendered "The last Rose of Summer" in good style (instrumental). The Petch quartette choir sang a few pieces very well, also "Our Homes," by Mr. Petch. Mr. F. Spence from Toronto, spoke for an hour and a half on "Brain conflicts." This gentleman has the true gifts of an orator and dealt with his subject in masterly style. Miss Birnie sang a fine song in an appropriate manner. On Saturday morning Prof. Huntsman gave a half hour's lecture on phonography. Mr, F. Spence took up the subject of "Temperance in school." He said he would teach it as lessons in hygiene. The lecture was good and instructive. Miss Watson of Nobleton sang "Yesterday" very nicely. Mr. Scott of Toronto, gave two excellent addresses on History and Fourth Book Literature. Both lectures were full of thought and showed Mr. Scott to be a man of originality and ability. The convention then adjourned to meet at the call of the president.

LENNOX AND ADDINGTON.—The semi-annual meeting of this association was held in the model school building on Thursday and Friday, the 18th and 19th May. The first day at 10 o'clock a. m., the president Mr. Bowerman called the meeting to order and congratulated the teachers present on the large turn-out at the opening, there being over sixty teachers present from all parts of the county, some coming over forty miles to be present on that occasion. After the election of officers the president thanked the teachers for the honor they had conferred upon him in again electing him to the very important position which he occupied. He referred to the great loss the cause of education had sustained in the death of two of its leading educationists, Dr. Ryerson and A. T. Marling, M. A., high school inspector, and suggested that something should be done, before the meeting broke up, towards drafting a memorial to be placed on the books of the association. Mr. Burrows then gave his method of teaching the R. R. systems of Canada. It was evident from the way in which he handled the subject that he had taken a great deal of time in the preparation of the subject. His effort was highly appreciated by the teachers, and received a hearty applause. The president, called attention to some recent changes in the school regulations. 1st. That hereafter third class certificates shall be provincial. 2nd. That the renewal of third class certificates shall remain with the Minister of education, but annual reports as to the merits of such teachers signed by the inspector and the trustees of the section which he has taught are to be sent to the Minister. 3rd. There are to be district third class certificates. For the purpose of granting such certificates the Minister shall appoint a board of examiners. The subject of promotion examinations was then taken up. It was found that the system employed last year was not altogether successful, owing to the fact that the responsibility of conducting the examination rested entirely upon the teacher, which left room for a good deal of dissatisfaction in the minds of suspicious parents. It was finally resolved to divide the schools up into groups of five schools each, and that the teachers of each group should form the examining board for the group. The examinations are to be held in June and September of each year. A committee was then appointed to wait upon the county council and ask for a small grant to defray the necessary expenses for carrying on the promotional examinations. The meeting then adjourned to meet again in the evening at 8 o'clock, in the Town Hall. At the appointed time a large number assembled. The chair was occupied by the warden, Mr. U. Wilson. The first subject on the programme was a paper on the salary question by Mr. J. W. Black, H. M. east ward public school. Mr. Black reviewed the whole subject, from the time the teacher taught at $5 per month and board, with the extreme pleasure of boarding around, up to the present time. The chairman then invited the members of the association to discuss the subject. Mr. Irwin, H. M. of Bath public school gave an admirable essay, on the reciprocal relations between teachers and parents. On Friday morning the meeting opened at the appointed time when most of the teachers were present. Mr. Rose, H. M. of Selby public school, then gave his method of teaching mental arithmetic which was well received. Mr. Tinsdale, H. M., Newburgh public school, being called on, gave his method of teaching literature : he gave some very valuable hints in that direction. The salary question was then taken and was warmly discussed by Messrs. Tinsdale, Bowerman, Hicks, Martin and others. Mr. Patton, who had been a teacher in this province for over a quarter of a century, was then called on, and gave a very interesting account of his first school, and some of the pleasures of boarding around. The committee appointed to draft a memorial being called on, presented the following :—Whereas, since our last session it has pleased God in His divine Providence to remove two of our eminent educationists, in the person of Dr. Ryerson, the distinguished founder of our educational system, and inspector Marling, we, the teachers of Lennox and Addington, desire to put on record our high appreciation of the services rendered by them to the cause of education, and our regret at the loss sustained not only by their immediate friends, but also by the province at large by their removal. Signed, C. Fessenden W. M. Irwin, J. Bowerman, F. Burrows, D. Hicks, J. E. Mabee. The meeting adjourned until 1.30. On resuming, Mr. F. Ruttan, B. A. and Gold Medalist in natural science of Toronto university, was called on to give a lecture on the geology and mineralogy of the county of Lennox and Addington. He occupied two hours and a half and was listened to with marked attention by all present. On taking his seat he was greeted with prolonged applause by the teachers, after which a vote of thanks was given to the lecturer. The meeting then adjourned to the Town Hall at 8 o'clock p. m., when Miss Robertson gave an exposition of the kindergarten system, wich she exemplified in a manner which left no doubt in the minds of the audience assembled that she thoroughly understood the subject. A fair audience greeted Miss Robertson, and all were well pleased with the entertainment.

ONTARIO.—Held in the high school, Uxbridge, on 2nd and 3rd June. The attendance was rather small all through the several sessions, and many of those whose names were on the programme did not put in an appearance. The proceedings were opened by D. McBride, M.A., H. M. Port Perry high school, president. The minutes were read by the sec.-treas., Mr. A. G. Henderson, and on the motion of Mr. D. Jennings, adopted. Mr. Henderson, in the absence of Mr. Eddy, introduced the subject "Reading" and dwelt more particularly on elocution. A spirited discussion on the exercise ensued, joined in by Messrs. Jennings, McBrien, I.P.S., Lockyer and others. In the afternoon Mr. Henderson gave an extremely practical and useful address on "Book-keeping" showing how it could be advantageously taught in the public schools by adopting the simple accounts he had ruled on the blackboard, and going through actual business transactions with the pupils. On the motion of Mr. Magee, M.A., H. M. Uxbridge high school, seconded by Mr. McBrien, I.P.S., a cordial vote of thanks was unanimously given to Mr. Henderson for his excellent address. Mr. D. Jennings then took up "Fourth Book Literature," and advocated the teaching of collateral subjects in bringing out the whole sense of the lessons, such as geography, grammar and analysis, Latin roots, &c. Mr. Jennings was listened to with great attention and at the conclusion of his able and extremely practical address was warmly applauded. The subject was pursued in discussion with much ability by Messrs. McBrien, J. Willis, J. Brown, H. M. Whitby model school, and others. G. H. Robinson, B.A., H.M. Whitby high school, proposed the following resolution which was seconded by Mr. McBrien and carried unanimously :—"*Resolved*, that the county of Ontario teachers' association, upon this the first occasion of its meeting after the death of tho Rev. Egerton Ryerson, D.D., L.L. D., late Chief Superintendent of Education for the province of Ontario, desires to express, and to place on record, its sense of the immense debt of gratitude the country owes to him under the blessing of Providence in founding and fostering our national system of education, the pride and heritage of our country ; and to express the sense of the severe loss the teaching profession has sustained in the death of one who, both in his active work and his retirement, was in every respect the teachers' friend." The inspector, in a few earnest words, eulogized the memory of the distinguished deceased, and Rev. A. Davidson, and Rev. J. A. McClung also spoke affectingly of the great work that had been done by him for education. Mr. Robinson then proposed the following resolutions:—"That in the opinion of this association, the granting, by the Minister of Education, to private schools, having no connection with the state, and under no state control, the privilege of having the entrance examination and the intermediate examination, as obtain in the high schools, conducted within their walls and for the special advantages of their pupils, is a departure from the spirit of our educational system and the manner in which it has hitherto been interpreted ; is likely to lead to great abuses ; to injure the reputation and finances of the national schools ; to introduce into our school system other questions than education ; and that such privileges should be withdrawn from private schools and confined strictly to the national schools. Also, that a copy of this resolution be forwarded to the Minister of Education."—It was seconded by Mr. Magee, and after some discussion joined in by Messrs. Jennings, Davidson, Henderson, Magee, Crosby and Rev. A. Davidson, in which it was elicited that Pickering college was granted the privileges mentioned, the resolution was put and carried *nem con*. Mr. Jennings was warmly thanked by the association, on the motion of Mr. J. Brown, for his address on literature. *Second day*. The forenoon was devoted to a discussion on text books. As regards readers, Inspector McBrien said the series now in use were "the worst in Christendom," and spoke in high terms of the new series published by W. J. Gage & Co. Several teachers expressed dissatisfaction at the present series, and after some discussion, the matter was relegated to the standing committee to report at next session. Mr. Jennings tendered his resignation as vice-president of the association, as he was about to leave for British Columbia where he had accepted the head mastership of a school in an Indian missionary settlement. He expressed the cordial feelings he possessed for the association during the past ten years and the kind relationship that existed between the members and himself, and said that he should always remember them in the far-off land where his sense of duty called him and where he felt the lessons of experience he had learned while a member of the association would be turned to good account. Many of the teachers present testified to the worth and excellence which endeared Mr. Jennings to them, and hoped that he would prosper in his new sphere. On the motion of Mr. J. Brown, seconded by Mr. J. Lockyer, the following resolution was carried by rising vote :—"*Resolved*, that this association receives and accepts the resignation of Mr. Jennings with deepest regret, and desires to express the high esteem in which he has ever been held by its members both as an honored member and officer, and as an earnest and successful teacher in the county ; and likewise to wish him even a greater measure of success in his new sphere of labour than has attended his efforts while one of us. In taking leave of him it cannot omit the opportunity of expressing its approval of the wisdom displayed in selecting a Christian gentleman and worker so eminently fitted for the position to which he has been called." Mr. Jennings expressed his gratitude for the kind feelings which prompted the resolution. Mr. Magee was elected vice-president and committee member in place of Mr. Jennings. Mr. J. Willis, Whitby, and W. W. Tamblyn, M. A., Oshawa, were appointed delegates to provincial association, after which the convention adjourned to meet at Whitby at call of general committee.

SOUTH SIMCOE.—The eight session of this association was held in the public school, Beeton, on the 19th and 20th ult., under the presidency of Rev. T. McKee, I.P.S. Minutes of previous meeting were read by Mr. J. C. Morrison, secretary, and confirmed. Mr. T. J. Atkins took up his method of teaching "Notation and Addition," which elicited a discussion on the various methods of teaching addition, joined in by Messrs. F. Wood, H. P. Hobson and Dr. Forrest. Several teachers having contributed to the Question Drawer, a profitable hour was spent in explanation and discussion on the different topics thus introduced. In the afternoon Mr. C. W. Chadwick read a paper on "Geography" which was highly appreciated. Miss Springer read a cleverly written essay on "The Teacher as a Moulder of Character," for which, on the motion of Dr. Forrest, seconded by Mr. E. Ferguson, she was tendered the cordial thanks of the association. The Question Drawer having been resumed and the advisability of promotion examinations being one of the questions, the matter was warmly discussed, but it was decided to postpone action until the secretary could ascertain from other counties how the system worked. Oral examinations, the age at which children should be first sent to school, and other important subjects were discussed, chiefly by Dr. Forrest, Messrs. Wood, Chadwick, Hipwell, Williams, B.A., Ferguson and York. Mr. Williams, B.A., H .M. Collingwood, C.I., gave an eloquent address on "The Benefit of the Study of English Literature," for which, on the motion of Mr. Morrison, seconded by Mr. Chadwick, he received the thanks of the association. A committee consisting of Messrs. Wood, Chadwick, McCandless, York and Williams, was, on the motion of Mr. Williams, appointed to consider the advisability of supplying one or more Educational Journals to the members. In the evening Mr. G. M. Adam read a lecture on "Live to be Useful," in the Court House. Dr. Forrest proposed and Mr. Williams, B.A., seconded a vote of thanks to the lecturer, which was passed unanimously. The president, Rev. T. McKee, occupied the chair. *Second Day.* The committee on Journals gave their report to the effect that each member pay the sum of $1.50, and that the CANADA SCHOOL JOURNAL and the *Educational Monthly* be supplied to paying members for one year. On the motion of Mr. Hipwell, seconded by Mr. Morrison, the report was adopted. In the discussion on the report Mr. Morrison stated that it was the desire of the association to avail themselves in this most practical manner of the grant received from the County Council and to encourage the teachers to become paying members. As the attendance at the meeting was small the president said that in future he would send to the Minister of Education the name of every teacher who does not attend the convention of the association. On the proposition of Mr. Williams seconded by Mr. Wood, it was resolved:—"That the secetary give notice to all the teachers that the requirements in regard to associations will be enforced at next meeting, unless a valid excuse be sent for non-attendance." Dr. Forrest then took up "Grammatical Analysis" selecting some sentences which contained difficulties observed at several examinations. By simple signs he illustrated his plan of teaching and showed how he would dispose of the difficulties and render them comparatively easy of comprehension. His remarks were combated by Messrs. Williams, Chadwick; Hobson and Stewart and a lively discussion ensued. Mr. Ferguson then in a masterly manner showed his plan of teaching "Copy Book and Commercial Writing." He advocated the use of the Beatty series of Penmanship, and explained its principles, commenting on the excellent grading and general superiority of this series. The election of officers then came on, resulting as follows: President, Mr. F. Wood; Vice-pres., Mr W. C. Chadwick; Sec-treas., Mr. J. C. Morrison; Committee of Management, Dr. Forrest, Rev. Thos. McKee, Messrs. Luck, Ferguson and Hobson. Moved by Mr. Chadwick, seconded by Mr. Wood:—"That only two delegates be sent to Ontario Teachers' Association;" carried. Moved by Mr. Wood, seconded by Mr. Luck, "That Dr. Forrest and Mr. Chadwick be delegates," carried. Moved by Mr. Wood, seconded by Mr. Chadwick:—"That the next meeting of the association be held in Cookstown at call of executive," carried. Adjourned.

EAST VICTORIA.—The teachers of East Victoria met in convention at Lindsay on the 25th of May, the proceedings, as usual, taking up the greater part of the following day as well. In the absence of Mr. S. Armour, the president, the chair was taken up by the inspector Mr. J. H. Knight who also delivered on the evening of the 25th a public address on "Public Examinations." The remainder of the programme for the evening meeting was filled up with readings by W. F. Seymour and J. D. MacMurchy. The first place in the programme of the convention proper was accorded to "Pronouns," a topic which was handled by Mr. O'Boyle with more than the usual amount of originality and of freedom from the restraints of formal grammar. The claims of "Short-hand" were ab ladvocated by Mr. J Head who, as a skilled phonographer, naturally preferred and highly recommended that peculiar system of short-hand which goes by the name of "phonography." The deep interest taken in this subject justified the selection made by those who placed it on the programme. "Fractions" occupied the next division and the practical manner in which Mr. J. C. Smyth dealt with the subject won the hearty approval of the meeting. An exceedingly practical address on "How to save Time," by Mr. W. F. Seymour, was listened to with marked attention but the great number of the useful hints with which it bristled make it impossible to give even the merest synopsis of his method. On Friday morning Dr. Curry, inspector of Haliburton, read a very practical paper on "School Work and Physical Development," for which he was warmly thanked by the Association. A paper containing some practical views as to how "conventions" should be managed, was read by G. F. Sherwood, and a very able and, for its length, comprehensive review of the history of English literature was given in the form of a paper on that subject by A. Carruthers, B.A. During the day the question drawer was opened from time to time as the state of the programme warranted and many of those present took part in the discussion of such practical questions as: "How would you check truancy?" "Are prizes in schools beneficial?" "Should fractions be taught before or after the compound rules?" "Should spelling be taught orally?" &c. The election of officers resulted in the following list for the coming year:—President, J. H. Knight; 1st V. P., J. C. Smyth; 2nd V. P., Miss Peplow; Secretary, J. Head; Treasurer, G. A. Irwin; Librarian, J. D. MacMurchy. The meetings were unusually well attended and the convention was more than an average success.

NORTH HASTINGS.—This Association met in Madoc, May 18th and 19th. The minutes of last meeting were read and adopted, after which the report of Committee on Promotion Examinations was read and approved, and the action of the Committee endorsed. The printed regulations for the examinations were then adopted. Mr. Morton was appointed delegate to the Provincial Association. Mr. Beall read an article from the *Century Magazine*, entitled "Hints on Reading." after which the Association adjourned. In the afternoon, after roll call, Miss Wootton taught a primary reading class in a manner that could not fail to be instructive to those who saw and heard it. A short discussion on the subject followed. After a reading by Miss McDermid, Dr. McLellan introduced the subject of Intelligent Teaching of the Simple Rules. After a short intermission, Mr. Hicks introduced the subject of History, dealing with it generally. He called attention to the fact that the purpose in teaching this as other subjects is to prepare the pupils to work for themselves. Mr. Mackintosh then took up Grammar and Composition. In the evening, Dr. McLellan delivered a most eloquent address on "Teacher and Parent in Relation to the School," to a large and deeply interested audience, who showed their appreciation of the lecture by frequent applause, and by the hearty vote of thanks tendered the lecturer at the close. On Friday, Mr. Mackintosh addressed the teachers on the approaching Uniform Promotion Examinations, and resumed the discussion of Grammar and Composition, giving many valuable suggestions as to the proper teaching of these important subjects. Mr. Jenkins then discussed the Geography of North America, which he would teach by means of both map and map-sketch. After a short discussion, Dr. McLellan took up the subject of "Reading, and How to Improve it." He dwelt on the imporance of Reading, calling it the key which unlocks the doors of all other knowledge. He advised teachers in teaching it to beginners to combine the phonic with the word method, and analyze all simple words. The subject of School Management was discussed by Mr. Miller, who gave many valuable hints on the management of pupils both in the school and at home. In the afternoon, after a reading by Mr. Hicks, Dr. McLellan discussed the subject of Good and Bad Questioning, giving examples of both. He spoke first of the objects of questioning, then the qualifications of the questioner, and lastly of the characteristics of good questions. Dr. Dafoe then gave a most valuable address on Hygiene, for which he received the thanks of the Association. The Question Drawer was opened and questions answered by Dr. McLellan and Mr. Macintosh. A Reading by Miss Riddell followed, after which it was moved by Mr. Hicks, seconded by Mr. Miller, and carried unanimously, "That the thanks of this Association be tendered to Dr. McLellan, for his valuable assistance in making this a successful meeting." To this Dr. McLellan briefly replied. The following resolutions, moved by Mr. Mackintosh, seconded by Mr. Wood, were passed:—"That this Association desires to put on record its deep sense of the irreparable loss sustained by the Province generally, and the cause of Education in particular, by the death of Rev. Dr. Ryerson, to whose wise conception and great administrative abilities we owe our unrivalled system of national education." "That this Association tender their sympathy to the widow and family of Dr. Ryerson; and, that a copy of this resolution be transmitted to them." After singing the National Anthem, the association adjourned.

SOUTH GREY.—The semi-annual meeting of this association was held in the Town Hall, Flesherton, on the 25th and 26th May. There was a good attendance on both days. After the usual routine business was transacted the president, Mr. M. N. Armstrong of Durham model school, delivered a well prepared and practical address which was well received. The inspector was present at all the sessions of the convention and took a hearty interest in the work. Before the programme was entered on several committees were appointed. The following subjects were introduced and discussed the first day. "The necessity and best methods of class marking," by Mr. T. Hall; "The use and abuse of emulation in school" by Mr. Irvine; "Mathematical geography" by

Mr. Gossline; "Mistakes in pronounciation" by Mr. W. Campbell, and "Text books in school" by Mr. McMaster. Mr. Williams H. M. of Collingwood collegiate institute was present during the afternoon session and readily gave the benefit of his knowledge and experience to the members of the association. The inspector read well prepared answers to a series of questions sent to question drawer. After preliminaries on Friday the first business was receiving reports of committees appointed the preceding day. The committee on nominating office bearers for next year gave in their report through Mr. Gossline which was after some discussion unanimously sustained. The following are the office bearers for the ensuing year:—President, M. N. Armstrong; vice-president, M. P. McMaster; managing com., W. J. Patterson, W. L. Dixon, S. Neely and W. Sharpe; delegate, M. P. McMaster; auditors, Donald McDonald and Chas. Ramage; sec.-treasurer, John C. Bain. Report from librarian was handed in by inspector. Auditors' report read and accepted. Mr. Williams, B. A. of Collingwood then gave a most admirable address on "English literature" which was highly appreciated by the members of the association. Mr. D. Boyle of the Canada Publishing Co. gave an address on "What Canadian reading-books ought to be," strongly urging the claims of the series proposed to be published at an early date by the above Company in Toronto. It was deemed advisable to adjourn the discussion on readers till the afternoon. Mr N. W. Campbell then introduced his subject, "The infinitive and participles" and as might be expected and as Mr. C. intended the paper gave rise to an animated discussion which had to be adjourned. The afternoon was mainly occupied by the discussion on readers, one or two whose names were on the programme giving place to the gentlemen from Toronto. Mr. W. J. Gage advocated the claims of the new series of readers published by his house some time since and which are being extensively used in other provinces of the Dominion, and Mr. Boyle again urged the merits of the series that are being prepared by Campbell of Toronto. As comparatively few of the members of the association had a proper opportunity of fully examining the Messrs Gage & Co's series of readers it was not deemed wise on the part of the association formally to endorse them but those teachers who had proper opportunities of examining the readers expressed the pleasure and the profit they would have in using them instead of the series at present in use. The secretary was authorized to forward a copy of the following minute to all the members who had not an opportunity of hearing the matter discussed and carried at the meeting. Resolved:—"That the fee for membership for ensuing year shall be 50 cents, and that all members paying the same shall be entitled to receive a copy of either the *Canada School Journal* or *School Examiner* for one year commencing June, 1882, and that the payment of the additional sum of 50 cents shall entitle a member to receive both journals." On the evening of Thursday a very successful entertainment was given in the Town Hall. Addresses were delivered by Rev. Mr. McLeod, Mr. Williams, Dr. Christie and Rev. Mr. Philips. Reading by Mr. M. N. Armstrong. The music was supplied by several young ladies of Flesherton and by Mr. Anderson whose rendering of several Scotch songs was, as usual, much admired. JOHN C. BAIN, Sec.

PRESCOTT.—The regular semi-annual meeting of the Prescott teachers' Association, was held in the high school, Hawkesbury, on the 9th of June, 1882. About fifty teachers were present. The president, Mr. W. J. Summerby, I. P. S., opened the proceedings with a very interesting address on "Education in the United Counties," comparing the educational standing of the united counties with the other counties of Ontario. The following were elected officers for the ensuing year:—President, Mr. W. J. Summerby, I. P. S.; vice-president, Messrs. J. A. Houston, B. A., and T. O. Page, B. A.; secy- treas., F. Bissett, L'Orignal; committee of management; Messrs. D. Marshall, O. Duford, J. W. McCutcheon, Miss Hyde and Miss de Tilley. The subject of "Hints on arithmetic" was then taken up by Mr. C. R. Gray, giving many useful hints and explaining fully a few methods of writing problems on the blackboard for junior classes, so as to save the time and labor of the teacher. An excellent essay on "Letter writing" was read by Mr. J. W. McCutcheon, explaining afterwards by examples on the blackboard, his method of teaching the subject. A short discussion followed. In the afternoon Mr. F. Bissett read an essay on "Incentives to study," which was well received,—dealing especially with the following points,—approbation, disapprobation, emulation, and giving of prizes. "A method of writing" was then taken up by Mr. C. R. Gray, in which he pointed out the defects of the system, at present used in our schools, and the difficulties teachers have in teaching it. He advocated the adoption of the "half engrossing hand" and illustrated his method by numerous examples. Considerable discussion followed. Mr. E. B. Robinson followed with an able essay on "How not to teach" pointing out many errors of method into which teachers are apt to fall. During a short intermission the committee of management met and it was decided that the next meeting of the association should be held at Vankleek Hill, on the 6th and 7th of October next. On the meeting being again called to order Mr. J. A. Houston, B. A., read a highly suggestive essay on "Modern history" clearly pointing out the important part newspapers should play in school work, especially in teaching history and geography, and in cultivating a taste for good reading. Mr. D. Marshall followed with a very instructive essay, on "The teacher out of school," touching on the following points in a very practical manner.—The teacher's habits,—employment of leisure time—outdoor exercise—finances and social standing. Several other subjects were to have been taken up, but the gentlemen having charge of them not being present, it was considered advisable not to continue the meeting on Saturday. The association then adjourned to meet again at Vankleek Hill, on the 6th and 7th of October next. Dr. McLellan not being able to attend, the lecture which was to have been delivered by him on Friday evening was postponed.

Readings and Recitations.

FOUND AT LAST.

"Mister, no doubt you have all the learnin' that's required in a school teacher, but it wants more than learnin' to make a man able to teach school in Cranberry Gulch. You'll soon find them out if you try. We've had three who tried it on. One lays there in the graveyard; another lost his eye and left; the last opened school and left before noontide for the benefit of his health. Now you're a slender build, and all your learnin' will only make it worse, for all our young folks are roughs and don't stand any nonsense!"

This was what one of the trustees of the district said to my friend Harry Flotee, when he made application for the vacant position of teacher.

"Let me try. I know I am slender, but I am rough and have a strong will," said Henry.

"Jest as you like. There's the school-house, and I'll have notice given if you want it done," said the trustee.

The notice was given and there was a good deal of excitement in the gulch and along the Yuba flats. More than fifty young people of both sexes made an excuse to drop into the tavern to get a sight at the fellow who thought he could keep school in that district, and many contemptuous glances fell on the slender form and youthful face of the would-be teacher. Eight o'clock on Monday morning came, and Harry Flotee went down to the school-house with a key in one hand and a valise in the other.

"Ready to slope if he finds we'er too much for him," said a cross-eyed, broad-shouldered fellow of eighteen.

The school-house was unlocked and the new teacher went to the desk. Some of the young folks went to see what he was going to do, though school was not called. Harry opened his valise and took out a large belt. Then, after buckling it around his waist, he put three Colt's revolvers there, each six barrels, and a bowie knife eighteen inches in the blade.

"He means business!"—muttered the cross-eyed chap.

The new teacher now took out a square card about four inches each way, walked to the other end of the school-house and tacked it up against the wall. Returning to his desk, he drew a revolver from his belt, and quick as thought sent ball after ball into the card, till there was six balls in a spot not much larger than a silver dollar. By this time the school-house was half full of large boys and girls. The little ones were afraid to come in. Then the teacher walked half way down the room with the bowie knife in his hand, and threw it with so true a hand that it struck quivering in the very centre of the card. He left it there and put two more knives of the same kind in his belt and quietly reloaded his yet smoking pistol."

"Ring the bell; I am about to open school."

He spoke to the cross-eyed boy, the bully of the crowd, and the boy rang the bell without a word.

"The scholars will take their seats; I open school with prayer," he said sternly five minutes later.

The scholars sat down silent, almost breathless. After prayer the teacher cocked a revolver and walked down on the floor.

"We will arrange the classes," he said. "All who can read and write will rise. Of them we will form the first class."

Only six got up. He escorted them to upper seats, and then began to examine the rest. A whisper was heard behind him. In a second he wheeled, revolver in hand.

"No whispering allowed here!" he thundered, and for an instant his revolver lay on a level with the cross-eyed boy's head.

"I'll not do so any more," gasped the bully.

"See you do not. I never give a second warning," said the teacher, and the revolver fell.

It took two hours to organize the classes; when done, they were well organized. Then came recess. The teacher went out, too, for the room was crowded and hot. A hawk was circling overhead high in the air. The teacher drew a revolver and the next second the hawk came tumbling down among the wondering scholars. From that day on Harry kept school for two years in Cranberry Gulch, his salary doubled after the first quarter, and his pupils learned to love him as well as to respect him, and the revolvers went out of sight within a month. They had found a man at last who could keep school.—*San Francisco Chronicle.*

PASTOR DANKMARDT.

POMERANIA, 1807.

'Twas in the Northern German land,
Fast by the Baltic Sea,
When the French Emperor sent his troops
To bend the people's knee,

And dwell within their houses,
Feasting on wine and corn,
Till German hearts should learn to feel
The might of foreign scorn.

They came to Bodenstede,
A hamlet green and still,
With fountain in the market place,
Where maids their pitchers fill.

They overran the village street,
They overran the inn,
They stole the peasants ripening crops,
And strove the maids to win ;

And up and down throughout the night
They sang their ribald song,
While hidden evils darted forth
To join the lawless throng.

How fair was Bodenstede !
But deeds the Frenchmen wrought
Among her pleasant summer fields
No peaceful harvest brought.

The people seized the soldiers,
And bore them to the strand,
And shipped them to a barren shore
Within a hostile land,

And then returned rejoicing ;
But he, the nations' fate,
Quickly dispatched a mightier corps
To hold the conquered state.

Alas for Bodenstede !
How sad the sun uprose
That day the foreign flags returned
Before his golden close !

Rode forth Commander Mortier :
"Seize all the men," he cried,
"Who rule in Bodenstede,
And place them side by side ;

"And at the signal given,
Shoot each man where he stands.
They that rema n shall live to see
Their blazing homes and lands."

Then forward stepped the pastor ;
His eyes were bright as flame ;
"If any man is shot, shoot me !
Mine is the guilt and shame.

"I bade the people to revolt,
And drag the men away ;
I sent them to the Swedish shore ;
Twas I urged on the fray.

"Hear me, O sire, how innocent
These people surely are ;
I pray thee burn my guilty roof,
But all the others spare."

The stern Commander Mortier
Heard what the pastor said,
One moment stood irresolute,
Then turned his horse's head :

And putting spurs to flank, they rode
Out from the wandering town ;
And as they passed, the word was given,
"These fisher-huts burn down !"

A few poor sheds where no man dwelt !
No blood that day was spilled :
And thus Commander Mortier
The Emperor's law fulfilled.

Those battle-fields are overgrown,
Dim is their glory now ;
But Virtue ever wakeful shines ;
The stars are on her brow.

The pastor in his flowing gown,
Before the armed host,
Joyfully giving life and home
If he may save the lost :

Deep in the German father-land
This rooted memory grows,
And safe within the children's heart
The living picture glows.

—ANNIE FIELDS, in *Harper's Magazine for January.*

THE OLD BRICK SCHOOLHOUSE.

BY GEO. E BURLEIGH.

The Old Brick School House on the green,
With its pyramid roof and windows high,
And the sentinel poplars, tall and lean,
That seemed to my fancy and boyish eye,
Standing up stiffly and brushing the sky
As a trooper's plume is seen,—
I figure them still as I saunter by.
Though house and trees, and the green itself,
Have gone at the touch of Time, the elf ;
Who leaves, for old things laid on the shelf,
Only new ones,—and a sigh !

How the bolt-up benches were hacked and hewn
By the Yankee jack-knife's hungry edge,
Into scrap, transverse, and demi-lune ;
What sculptured names on the window-ledge,
And beetle-head profiles, with nose for a wedge,
Just splitting a carvéd moon !
And how the dear dumpies, with legs too short,
Hung on the fore-forms perilous perch,
With nothing to touch on the back, but the birch,
And nothing below to recover a lurch,
But the far-floor futilely sought !

There were gaps in the wall and a crack round the door,
Where the wind would come and whistle in school,
And gaps in the all-æolian floor,
To serve, as the head broiled more and more,
To keep us the dear feet cool !
And the wood would fail in stormy days,
So only the boist'rous boys could stay ;
With logs and laths in a roaring blaze,
To warm the house we would nearly raze,
In the other sense, with our tearing plays.
Through the howling of gale(y)-day.

The fire-place, which had long subdued
The ardor of fuel to "latent heat,"
For the stubborn rebel, hot and rude,
Proved most, for a cooling dungeon meet.
While the huge stove-pipe,—an iron street,
Or Menai bridge, pursued.
By the haunting notion a fall would *soot.*
The boys below as a striking joke,
Would slip its joints like a crab, and do't,
Scorching the fingers put rashly to't.
While fire and boys rushed out with a hoot,
And the whole thing ended in smoke !

There were noble boys and fairy girls,
Whom now I see through the haze of years
As through that smoke's voluminous curls,—
My eyes repeating the same old tears,
Though moving far in their sundered spheres
Their chequered web unfurls ;
Some plant new States in the stately West,
Some plant potatoes and onions here ;
Some rock their little ones on the breast,
And some, if less happy perchance as blest,

Over the bed of a darling's rest
Are dropping a mother's tear.

We've a new brick schoolhouse, stiff and tall,
The front threeslegged with columns white,
And elbowed into the street by a wall;
While squash and cabbage usurp the site
Of the former, as if there by right,—
The old heads done in small!
But sooth if I were a boy, as then,
I would long to see the old hut back;
My heart would sigh for each dear old crack,
And my jack-knife burn for a place to hack,
Though for hacking it burned again.

REVIEWS.

The annual report of the superintendent of schools for the State of Wisconsin for the year ending August 31, 1881 has just come to hand. According to him a survey of the educational movements of the State shows that improvements have been secured in the following points: (1) a steady and healthful advancement in all grades of schools and methods of school work; (2) a more manifest exppression of the spirit of harmony and earnest zeal in the management and teaching of schools; (3) a more general and decided recognition of the prominent defects in the public school system and greater willingness to remedy these defects; (4) a growing sentiment in some sections in favour of employing teachers with better qualifications, and for longer terms; (5) an increased and more uniform attendance of pupils; (6) a wider dissemination of the most reliable information about hygienic laws as applied to the construction of school houses, the oversight of school grounds, and the care of children while in school; (7) a marked progress in the methods of classifying and instructing the pupils in ungraded country schools.

An Etymology of Latin and Greek. By C. S. Halsey, M.A.; *Boston, Ginn, Heath & Co.*—Our first impressions of this work are that it is admirably adapted to the object in view—that of "presenting, within the limits of a school-book, the most needful etymological information, that is not adequately furnished by the grammar or the lexicon." It is well known that according to ordinary methods of classical instruction no systematic knowledge of etymology is obtained. We believe that this book meets a felt want in this direction. The advantages of comparative philology or historical etymology cannot be attained merely through the use of grammar and lexicon. Here, however, is a work that "gives the original and central meaning of related words, and, gathering the words themselves together, unites them by the natural bond of their common origin." A comparison such as is here given tends not only to reveal new and interesting truth, but develops the mind and stimulates it to further investigations in this department of study. The book is got up in the excellent style so characteristic of this firm.

Poems, Songs and Odes is the title of a small volume published by the author, A. McAlpine Taylor, now headmaster of the Ingersoll model school. Such an undertaking argues on the author's part no small amount of courage in the face of the little patronage such productions have always received in Canada. There are many fine thoughts in the poems and many of them are admirably expressed, but there are also defects which might have been avoided had the *M. S.* been submitted before publication to some candid and intelligent friend. No author ever made a high reputation by trusting to the indulgence of the public. The better plan is to see that the article placed before his readers is as little open to adverse criticism as possible.

Roget's "Thesaurus" is one of the best known works on the use of the English language and one of the most useful. It is needless to introduce here any description of a work which is to be found in every well-equipped study especially when the proprietor's occupation is either translation or original composition. It will serve a much better purpose to endeavour to give some idea of the difference between the edition just published and the first edition which was issued in 1852. Dr. Roget's original collection of synonyms was the result of fifty years' observation and work. The latest edition prior to the one now before us was issued in 1855, and though the collection was at that time a very full one, the lapse of years and the growth of the language made it inevitable that it should fall behind the times. The work of preparing this revised edition has been undertaken and carried out by Dr. Roget's son who has had the advantage of his father's memoranda and also of other valuable assistance. The general arrangement of the 'Thesaurus' is that of a series of categories, each made up of a word, representing a leading idea, and other words representing ideas more or less closely related to it. It is evident that many words must logically appear in more than one category, and as this would tend to make the book inconveniently large the editor has adopted the plan of substituting references to places where words have been inserted instead of repeating the words themselves. One of the important features of this revised edition is a better classification of the ideas included in the categories. The index has been considerably elaborated and now forms a peculiarly valuable vocabulary of nearly 300 pages.

Dr. Hodgson's work* is one of those ingenious and scholarly treatises which are a source of delight to the student apart altogether from their utility. It is not intended to supersede the use of "formal helps to English composition," but rather to show those who want to write good English, how to avoid errors of the more subtle kind in the use of words. No mere description of the author's method would give so good an idea of the work as a specimen of his mode of dealing with misused words. Take for instance the preposition "between":

Quality is the fundamental notion of "between," which cannot therefore correctly be employed with more than two objects of reference or without the two objects being clearly indicated . . . Instances of "between" with more than two objects are:

"*Between* the offences of blasphemy, hypocrisy, and perjury, and partaking of the guilt of all three, lies that of apostasy." Miss Cobbe, *Intuitive Morals.*

"Paxriteles is said to have definitively given the character of sensuality to Venus who had previously floated *between* several ideals of beauty."
Lecky, *History of Rationalism.*

"Stirring up at the same time no little ill-will *between* the various races—English, French, Scotch, and Irish—who inhabited Canada." *Westminster Review.*

"Where *between* every stitch she could look up and see what was going on in the street." Mrs. Gaskell, *Mr. Harrison's Confessions.*

"The statement is dovetailed in *between* an attack on aristocratic converts to Rome and young men in business who attend Ritualist ceremonial." *Saturday Review.*

"If he does not distinguish *between* the province of reason and emotion—the most difficult of philosophical problems—he keeps clear of the cruder mysticism."
Leslie Stephen, *Hours in a Library.*

Of course the author indicates how the errors in his specimens of bad English are to be corrected, and his remarks on the correct use of words are nearly always unexceptionable and are often peculiarly instructive. The work is arranged in parts, the first of which contains in alphabetical order spurious words and words used with other meanings than their own; the second deals with blunders in the forms of words; the third treats of errors in arrangement and collocation; and the fourth discusses instances of confusion of thought and expression. In other words the four departments of the book deal with vocabulary, accidence, syntax, and rhetoric respectively.

MAGAZINES.

North American Review.—In the number for June, Senator W. B. Allison has a paper on "The Currency of the Future" in which he indicates the measures that will have to be taken by Congress for insuring a stable currency after the national debt has been extingushed. "A memorandum at a venture," by Walt Whitman, is an explanation of his purpose and point of view in trenching upon topics not usually regarded as amenable to literary treatment. "Andover and Creed Subscription," by Rev. Dr. Leonard Woolsey Bacon, is a philosophical review of the present state of dogmatic belief in the churches. Hon. George F. Seward, late minister to China, in an article entitled "Mongolian Immigration," makes an argument against anti-Chinese legislation. Dr. John W. Dowling, Dean of the New York Homeopathic medical college, comes to the defence of the Hahnemannic school of medicine against a recent attack upon its principles and methods. O. B. Frothingham has a sympathic article on Swedenborg. Not the least important paper is one entitled "Has Land a Value,?" by Isaac L. Rice, it being a criticism of one of the fundamental postulates of Henry George's political economy. Finally, Charles F. Leydecker essays to prove that a "National Militia" is a constitutional impossibility.

The Day of Rest has been received. It contains a variety of articles on a number of subjects, and will interest its readers.

*Errors in the use of English. By the late Wm. B. Hodgson, LL.D., Professor of Political Economy in the University of Edinburgh. New York, D. Appleton & Co. Toronto, Willing & Williamson.

Announcements.

THE ONTARIO TEACHERS' ASSOCIATION.

The twenty-second annual meeting of the Ontario Teachers' Association will be held this year in the public hall of the Education Department, in this city, on the eighth, ninth, and tenth of August. The association has, for nearly a quarter of a century, undertaken to discuss all kinds of questions connected with the educational system of the province, and on many of them it has from time to time pronounced very decided opinions. These opinions have, very properly, been treated with great respect by the Department, and many of the most useful improvements of recent years are the result of suggestions made by the Association. At the present time there is more need than ever that the inspectors and teachers should zealously watch the tendencies of our very excellent, but not yet perfect system, and contribute the results of their experience for the guidance of those who are placed in charge of it. For this reason we hope to see a larger and more representative attendance than ever before. The following is the official programme of proceedings :—

TUESDAY, 8TH.

10.45 A.M. The Treasurer's Report and General Business.
2.00 P.M. Reports of Committees.
3.30 P.M. "School Hours and Vacations."—Mr. F. S. SPENCE.
8.00 P.M. President's Address.—A. MACMURCHY, M.A.

WEDNESDAY, 9TH.

2.00 P.M. "How to make Teachers' Associations more useful." —G. W. ROSS, M.P.
4.00 P.M. "Drill in Music."—Mrs. G. H. RICHES.
8.00 P.M. An Address by J. A. MCCABE, LL.D. Principal Normal School, Ottawa. Subject, "The Schoolmaster Abroad."

THURSDAY, 10TH.

2.00 P.M. Election of Officers.
2.30 P.M. "Inductive and Deductive Methods in Education."—Prof. M. MACVICAR, PhD., LL.D.
4.30 P.M. "Text Books in Public Schools."—Mr. J. B. SOMERSET.
8.00 P.M. "Temperance in Public Schools."—Mr. W. H. HOWLAND.

Prof. GOLDWIN SMITH, will, it is expected, address the meeting during this evening.

The Sections will meet during the forenoon of each day.

PUBLIC SCHOOL SECTION.

"Christmas & Midsummer Shows (Examinations)."—Mr. R. LEWIS.
"Granting of higher Certificates to thoroughly successful Teachers of long standing in the Profession."—Mr. S. MCALLISTER.
Revision of Programme. Text Books. High School Entrance Examination.

HIGH SCHOOL SECTION.

"Training of High School Teachers."—C. FRESSENDEN, B.A.
"Relation of High Schools to the University."—J. MILLAR, M.A.
"Proposed Modifications of the Intermediate."—G. ROBINSON, M.A.
"High School Programme of Studies."—H. J. STRANG, B.A.
"Legislative Aid to Secondary Education."—A. P. KNIGHT, M.A.

PUBLIC SCHOOL INSPECTORS' SECTION.

"How to make Teachers' Associations more useful."
"Uniform Promotion Examinations."
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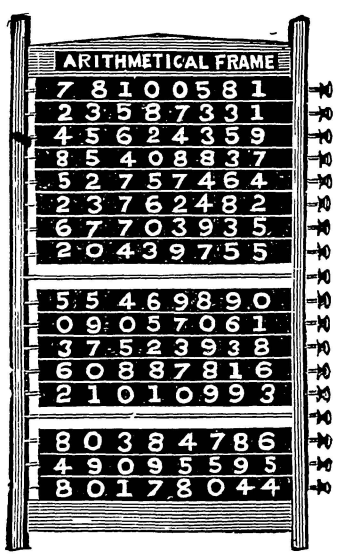

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(Signed) S. W. MASON, Supervisor City Schools, Boston, Mass.

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An Excellent Compendium. ALEX. MCRAE, Prin Academy, Digby, N.S.

I regard it as a necessity and an excellent compendium of the subject of which it treats. Its natural and judicious arrangement well accords with its title. Pupils instructed in its principles, under the care of diligent teachers, cannot fail to become correct spellers. Its great value will, doubtless, secure for it a wide circulation. I have seen no book on the subject which I can more cordially recommend than "The Practical Speller."

Supply a Want Long Felt. JOHN JOHNSTON, I.P.S, Belleville.

The hints for teaching spelling are excellent. I have shown it to a number of experienced teachers, and they all think it is the best and most practical work on spelling and dictation ever presented to the public. It will supply a want long felt by teachers.

Plan Ingenious. J. S. CARSON, I.P.S., Strathroy.

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Very Happy Arrangement. W. J. HENDRY, Pr. Co. Mod. School, Yorkville.

The plan is an excellent one. The groups of words are nicely arranged and graded, so that common words, or those that are most frequently used, are to be learned first. It is a very happy arrangement that of the reviews at the end of each part, and the selection of extracts containing sentiments of moral worth, and possessing literary excellence, to be used for dictation and also for memorizing. On the whole it is the best I have met with.

Practical and Fresh. E. H. OWEN, Prin. Academy, Lunenburg, N.S.

The preface is capital. I am charmed with the practicalness and freshness of the first four parts. I have at least a dozen different treatises on spelling, and not one of them comes up to my idea of what a spelling-book should be as yours does.

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A General Favorite. GEO. E. CROSSCUP, B.A., H.M. M.S. Fredericton, N.B.

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Preferred to others. W. P. SHAFFNER, Prin. Pub. S., Wolfville, N. S.

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Admirable Work. HOWARD MURRAY, Prin. Academy, New Glasgow, N.S.

I consider it an admirable little work The chapter on Similar Sounds is a particularly valuable one.

Collection of Gems. M. L. FIELDS, Prin. Graded School, Bridgetown, N.S.

I have carefully examined the little book, and must express my hearty approval both of the natural arrangement and contents of it. Your Practical Speller at once relieves me from doubtful selections, and gives me, in convenient *pocket* compass, the groups of words which I might spend much time in collecting. Your Hints on Dictating and Examining are valuable. I can commend them from actual practice. Perhaps the most pleasing feature of this little book is the collection of Gems in part 5.

Well Prepared. H. HUBBARD, I. P. S., Sherbrooke, Que.

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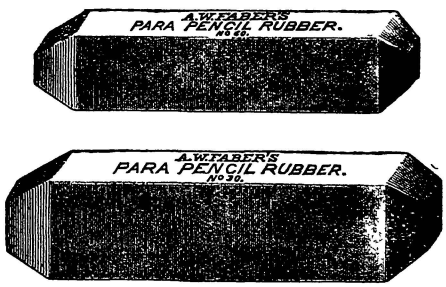

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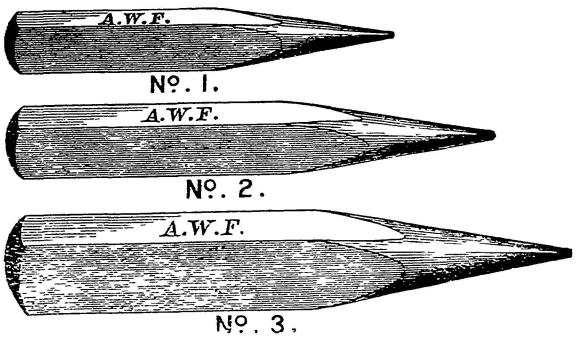

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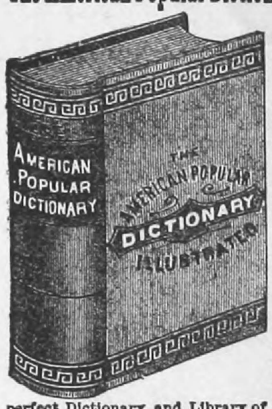

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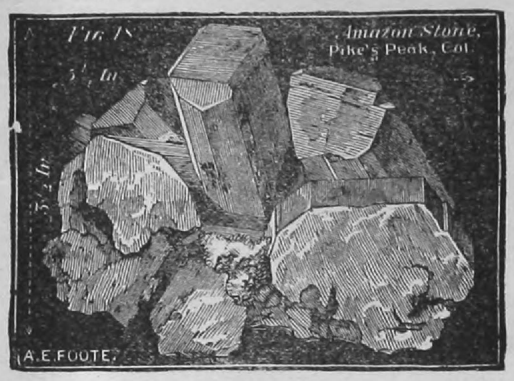

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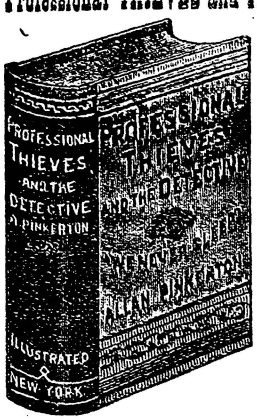

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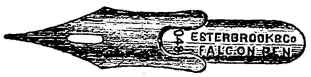

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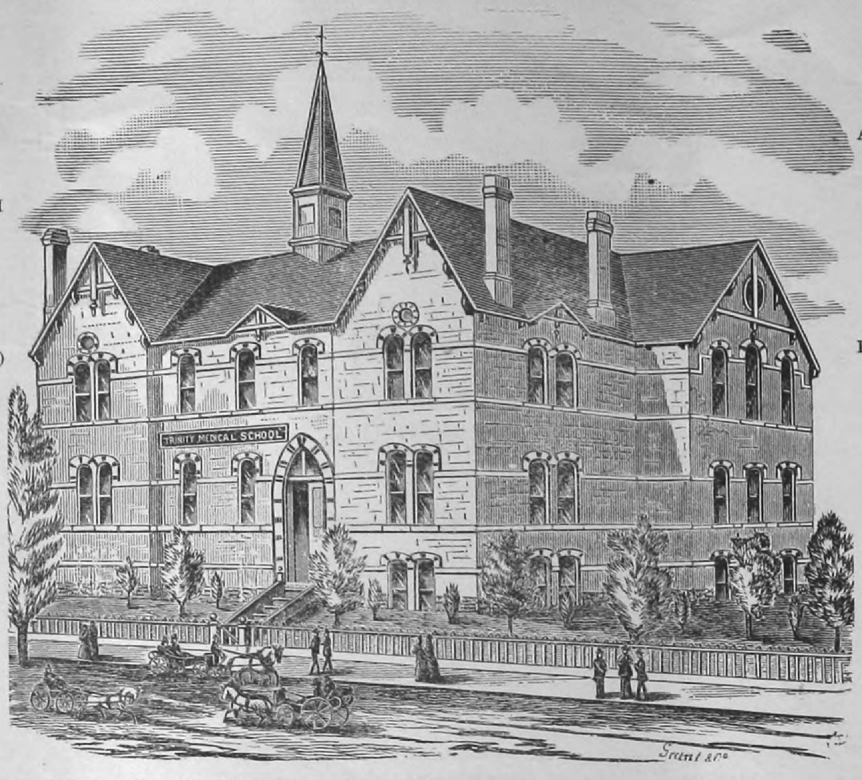

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REQUIREMENTS FOR DEGREE.—The candidate must be 21 years of age; and (1) must have studied medicine four years, and during that time attended *four winter sessions;* or (2) present a certificate of one year's study with a medical practitioner, and tickets of subsequent attendance upon *three winter sessions.*

HOSPITALS.—The Toronto General Hospital has a very large number of patients in the wards, who are visited by the medical officers in attendance. The attendance of out-door patients daily is also very large, and thus abundant opportunities are enjoyed by students, for acquiring a familiar knowledge of Practical Medicine and Surgery, including not merely major operations, but minor Surgery of every kind, ordinary Medical Practice, the treatment of Venereal Diseases, and the Diseases of Women and Children. The Burnside Lying-in Hospital, amalgamated with the Toronto General Hospital, has recently had its staff largely increased; and will afford special and valuable facilities for the study of Practical Midwifery. The large new building, close to the Hospital and School, will be very convenient for students attending its practice. The Mercer Eye and Ear Infirmary is also amalgamated with the Toronto General Hospital, and affords special facilities for students in this department.

TORONTO DISPENSARY.—This was established several years ago, and affords abundant facilities for practical instruction in the diagnosis and treatment of diseases of all forms. It is open to students free of charge.

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Full information respecting Lectures, Fees, Gold and Silver Medals, Scholarships, Certificates of Honor, Graduation, Diplomas, Fellowship, etc., will be given in the annual Announcement, for which, apply to

W. B. GEIKIE, M.D., Dean, or A. J. GEIKIE, M.D., Assistant-Secretary.

The Canada School Journal.

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CANADA SCHOOL JOURNAL HAS RECEIVED

An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course unable to make any distinction in a list containing names from all parts of the United States and Canada.

TRADE ORGANISM AND POLITICAL PARTISANSHIP.

The rumored approach of a general election for the Province of Ontario has called forth a more than usually atrabilious outpouring from that petulant and egotistical scold, yclept the *Educational Monthly*. That we have attributed the comments in its July-August number to the correct cause is apparent from internal evidence, but we have not to depend on this testimony alone. Those who are engaged in converting the attacks on the Education Department into a partisan political crusade have not even sense enough to keep their mouths shut while their pens are in operation. They have always "talked" and "talked," until giving themselves and their fellow-conspirators away has become a matter of common occurence. During the recent provincial convention it was publicly stated by one speaker that the *Educational Monthly* was, according to the boasts of its conductors, to indicate the line of attack on the Government and "form one of the first elements in the coming campaign," and his statement was allowed to go uncontradicted.

We appeal to fair-minded educationists all over the province whether this is the proper course for a journal pretending to be educational to pursue, and whether an alleged "educational" journal pursuing such a course is worthy of their support. There are thousands of teachers and trustees utterly averse to seeing our noble educational system made a party football, and these, without reference to party predilections or associations, will frown down any attempt that is fraught with such danger to the highest interests of the public.

While we do not consider our educational system perfect and are often compelled to differ from the Minister on matters of policy, there can be no doubt that the system itself is an admirable one and that in the main the changes made from time to time are in the right direction. But what opinion of both the system and the mode of administering it, would a foreigner from reading only the *Monthly* entertain? He would come to the conclusion that the cultured and courteous gentleman who presides over the Department is a born fool at once incorrigible and corrupt. That this language is not too strong can easily be shown from the pen-and-ink sketch of him in the *Monthly*. He "has no command of the resources of a great public man;" he is "anomalously compounded of capriciousness and political partisanship;" "it is not unreasonable to look with apprehension upon any organic change in the Departmental Regulations he may wish to originate;" "his knowledge of the working of our school system is derived at second-hand;" some of his proposed amendments "commend themselves to common sense," but for these he deserves no credit, as he took the ideas without credit from the *Monthly*; "in the proposed regulations nothing original is good and nothing good is original;" he is "dominated by his official importance," and his volition is "controlled by political bias or professional intrigue;" he is too much given to "dalliance with the affairs of his office," and when he becomes active he displays "an unhappy proneness to mixing and muddling, with the occasional accessory of a scandal;" "his regulations are persistently ignored by his subordinates who trust for immunity to personal and political influence or to their master's well known inaptitude;" he is "wanting in sensitiveness of apprehension," and is lacking in "sympathy with the teacher and his work;" his connection with our school system "clogs and discredits it," and the official correspondence of the Department is a "record of weakness and vacillation;" "his wordy flatulence is only equalled by his pretentious ignorance," and "his political partizanship is a public scandal;" "the Department can command neither confidence nor respect, and the whole system suffers with it;" he is not "of course entirely responsible for the low tone of the profession"—rather hard on the profession—"or for the laches of idle youths who under the pressure of the intermediate would rather prig than cram," but he cannot be entirely absolved "while his partizan administration continually enfeebles the sense of honor and of responsibility throughout the schools, and while his intellectual indigence and infirm executive make bureaucracy a laughing stock and centralization a scorn;" he ought to give way to some one who "could direct our school machinery with impartiality and judgment;" at present "the business of the Department" is not "properly attended to," and "favoritism is shown where favoritism is vicious."

We will not do those who indulge in such comments the injustice of imputing to them any belief in what they are saying. This mode of writing is due partly to the force of confirmed habit, as in the case of Mrs. Caudle or Mr. Spoopendyke, and partly to a deliberate intention to secure a change of Departmental management by a change of Government. To describe the language as unbecoming would be to praise it; such an outflowing of venom would disgrace the ordinary political journals who, however they may have to differ from Mr. Crooks, at least treat him, as he invariably treats his oppon-

ents, with courtesy. Matters have come to a hard pass when either trade jealousy or personal disappointment can drive a professed educationist into setting other journalists so pernicious an example.

The reference to the SCHOOL JOURNAL in the same article is of a piece with dozens of references of the same kind. This journal is not the "trade organ" of the publishers and we have no hesitation in appealing to our editorial and news columns for confirmation of this assertion. The publishers of the *School Journal*, except when compelled in self-defence to violate this rule, have studiously refrained from making use of any but its advertising columns in which to make their business announcements, and these columns are as open to other publishers wishing to advertise as they are to the publishers of the *Journal*.

So much cannot with truth be said of the *Educational Monthly* which has been persistently made the "trade organ" of its publishers, and especially of the Campbells' publishing establishments, in one of which the editor of the *Monthly* is at present an employee. By its highly commendatory notices of books published by that part of the trade for which it speaks, and its ludicrously unjust criticisms of all others of the same class it proclaims that it has no other function than that of a "trade organ" except the one already referred to of political hack. Any apparent exceptions to its ordinary practice are easily seen to have been prompted by a sinister purpose. For instance in its July-August number the *Monthly* gave a favorable notice of Macoun and Spotton's "Botany," a work which has been before the public for three years. They could afford to do this from the trade point of view since none of the publishers interested in the *Monthly* have, or are likely to have, any rival to that admirable manual, and by this cheap praise the conductors put themselves in a position to say that they do not invariably condemn books not published by themselves. The *Monthly's* editorial puffs of its own editor—a man whose sole qualification for his present position is that he has proved a failure at everything else—are beneath contempt.

UPPER CANADA COLLEGE.

At a recent meeting of the Senate of the University of Toronto a communication was received from the Minister of Education enclosing a report by Principal Buchan of Upper Canada College. In that report he recommended that the services of two of his colleagues, Messrs. Wedd and Brown, should be dispensed with, assigning as a reason that they were not able to maintain sufficiently good order in the class-room. Mr. Buchan must have known, when he was contemplating such action as this, that he would raise a storm if he ventured to do as he has done. That he persisted in what he conceived to be his duty in the premises speaks volumes for his moral courage, whatever the merits of the case as between him and the other members of the staff may be.

Attempts have been made in certain quarters to make it appear that Mr. Buchan has been actuated by other than honorable motives in what he has done, and that it is not his colleagues but himself who lacks the capacity to maintain a high state of discipline amongst the pupils. We venture to say that this is a point on which those who talk so glibly are quite incapable of forming any intelligent opinion. It is inconceivable that a new Principal should be anxious to get rid of veteran assistants without a strong conviction that their presence had become a source of weakness to the institution. Who is to judge between him and them? Is any opinion on the matter entitled to a moment's consideration which is not based on weeks or months of close observation? And why should the professed friends of the institution seek to injure it by weakening the hands of the Principal at a most critical period of its history?

We fully agree with the suggestion that the dismissed teachers—if they have really been dismissed—should not be sent out without adequate pecuniary provision for the future. They are dismissed with the brand of incapacity stamped upon them and this at a time of life when age alone would have formed a serious obstacle to a change of occupation. It is evident now that either Mr. Buchan or his two assistants must go, and in such a crisis the Minister of Education must stand by the Principal. To decline to act upon his recommendation would be tantamount to dismissing him, and this the authorities could do only after satisfying themselves that his management had proved a failure.

Mr. Buchan has been condemned for consenting to take the Principalship after having some years ago participated in a crusade against the very existence of Upper Canada College. This kind of criticism is utterly absurd. By assuming his present position he does not necessarily declare that he has changed his opinions about the expediency of maintaining the College, and it must be permitted to him to alter his views as the result of experience. For some years past, as high school inspector, he has occupied the position of a salaried servant of the whole Province, and when, on the occurrence of a vacancy in the Principalship he was asked to undertake its duties a belief in the inexpediency of maintaining the institution would have been no reason for refusing. His duty is to make it a success if he can, and those who know Mr. Buchan best will most readily and implicitly believe that when he undertook the task imposed on him he did it in perfect good faith.

SCHOOL READERS.

The Minister of Education has intimated to the various publishers who are engaged in the preparation of school readers, that he expects to have all the competing series before him by the 15th of September. At furthest, then, it cannot be more than a very few weeks till he is in a position to announce to the public which series he intends to authorize. Those who are engaged in the sale of the old readers should govern themselves by this intimation and take care that when the change goes into effect they are caught with as small a stock as possible.

ONTARIO ABROAD.

While paid scribes are misrepresenting Gage's Canadian Readers at home the books are meeting with kindly reception abroad as the following paragraph from the Toronto *Mail* of August 25th will show :—

It is a matter of some public interest here to learn that Ontario educational influence is felt in other countries. Messrs. W. J. Gage & Co., of this city, have just received a large order for their new series of Canadian Readers, which are to be introduced into the schools of Bermuda. The same firm were a short time ago favoured with a similar order from Bombay.

The *Educational Monthly* in its August number speaks of "one or two of the collegiate institutes whose masters have not had a proper regard for the dignity of their profession or the rights of other institutions." We are glad to see our neighbour's eyes opened at last to the discreditable character of the tactics which it thus euphemistically condemns. They would have been opened sooner had the worst offenders not been interested in the *Monthly* as stockholders and editorial writers. Better late than never; but how is even this incidental censure of the black sheep of the flock by their white brother to be accounted for? Has there been a falling out? Is the house to be henceforth divided against itself? One prominent member at least of the *Monthly* staff and company has good reason to complain, for he is plainly pointed to now, long after he has, acting on the kindly advice of the SCHOOL JOURNAL, ceased to offend. But whatever the motive of the *expose* we welcome it as an indication that even the *Monthly* has found the spirit of professional etiquette amongst teachers too strong to be ignored.

We publish this month the new Departmental regulations relating to public and high schools, and also the public school programme. The importance of the changes made is our best justification for giving up to them so much of our space.

Geographical Notes.

THE BOUNDARIES OF ONTARIO.

It is not our purpose in this paper to take any side in the dispute which has been carried on for ten years between the Dominion and Ontario Governments over the precise location of the northern and western boundaries of this Province. That dispute is still unsettled, but even at this stage there are some points of geographical interest connected with it; and as the sources of information with respect to them are not accessible to all teachers, it may prove useful to some to have the essential facts in a compendious and permanent form.

About the location of the boundary between Ontario and Quebec there is no dispute. It coincides with a line commencing on the north shore of the St. Lawrence at Longueuil, a few miles above the mouth of the Ottawa, and running across the peninsula until it strikes the south shore of the latter about the same distance above its junction with the St. Lawrence. The triangle thus cut off includes the two Quebec counties of Soulanges and Vaudreuil. The line then runs up the Ottawa to Lake Temiscaming, and thence due north to James Bay.

It will be convenient at this point to introduce the description of the northern and westerly boundaries as defined in 1878 by the arbitrators chosen to settle the dispute between Ontario and the Dominion, namely, Sir EdwardThornton, Sir Francis Hincks, and the late Chief Justice Harrison. Commencing at the point where the meridian of Lake Temiscaming strikes James' Bay, the northern boundary is made to run along the coast westward to the mouth of the Albany river; thence up that river to its source at the head of Lake St. Joseph; thence by the shortest line to the easterly end of Lac Seul; and thence down that lake and the English river to the point where the latter is intersected by a line drawn due north from the northwest angle of the Lake of the Woods, which last named line forms the western boundary. As no line due north from the angle has ever been surveyed, the award of the arbitrators provides that in the event of such a line falling west of the junction of the English with the Winnipeg river the northern boundary shall follow the latter westward to the point where the meridian of the angle strikes it. The boundary from the angle to Lake Superior is formed by the Lake of the Woods, Rainy River, Rainy Lake and one of its easterly extensions to the height of land, and (east of the latter) by Pigeon river, which empties into Lake Superior.

The contention of the Dominion Government has always been that the northern boundary should be the height of land separating the waters flowing into Lake Superior from those flowing into Hudson's Bay, and that the western boundary should be a line drawn due north from the junction of the Ohio with the Mississippi river. The dispute respecting the western boundary has always turned on the meaning to be attached to the word "northward" in a definition of the southern and western boundaries of the old Province of Quebec, as the latter was constituted by the Imperial Act of 1774. As this definition is in itself a matter of some interest, it is given here in full. It must be borne in mind (1) that the then Province of Quebec was afterwards divided into Upper and Lower Canada; (2) that the Act of 1774 was passed before the colonies which make up the United States became independent, and (3) that the object of the definition was to include in the Province of Quebec all the territory settled chiefly by French-speaking people. The Act provides that "all the territories, islands, and countries in North America belonging to the crown of Great Britain, bounded on the the south by a line from the Bay of Chaleurs, along the high lands which divide the rivers that empty themselves into the river St. Lawrence from those which fall into the sea, to a point in forty-five degrees of northern latitude on the eastern bank of the river Connecticut, keeping the same latitude directly west through the Lake Champlain, until in the same latitude it meets the river St. Lawrence, from thence up the eastern bank of the said river to the Lake Ontario, thence through the Lake Ontario and the river commonly called the Niagara, and thence along by the eastern and south-eastern bank of Lake Erie, following the said bank until the same shall be intersected by the northern boundary granted by the charter of the province of Pennsylvania, in case the same shall be so intersected, and from thence along the said northern and western boundaries of the said province until the said western boundary strike the Ohio; but in case the said bank of the said lake shall not be found to be so intersected, than following the said bank until it shall arrive at that point of the said bank which shall be nearest to the north-western angle of the said province of Pennsylvania, and thence by a right line to the said north-western angle of the said province, and thence along the western boundary of the said province until it strikes the river Ohio, and along the bank of the said river westward to the banks of the Mississippi, and *northward* to the southern boundary of the territory granted to the Merchants Adventurers trading to Hudson's Bay" should be, "during His

Majesty's pleasure, annexed to and made part and parcel of the province of Quebec as created and established by the royal proclamation of the 7th October, 1763."

The contention of the Dominion Government now is that the word "northward" must be held to mean "due north," and that the old province of Quebec never legally extended further west than the meridian of the mouth of the Ohio, which strikes the north shore of Lake Superior in the neighbourhood of Prince Arthur's Landing. The contention of the Ontario Government is that "northward" must be held to mean in a northerly direction along the Mississippi to its source and then along a line due north from that point. The latter is the view taken unanimously by the arbitrators, who also located the source of the Mississippi in Lake Itasca in Minnesota, which is almost due south of the north-west angle of the Lake of the Woods. Of course the treaty of Paris, under which Great Britain recognized the independence of the United States and agreed to the upper lakes as an international boundary, did away with that part of the one above defined which lay south of Lake Erie. It did not, however, alter the position of the starting point by which to determine the western boundary of Ontario, which is by common consent the western boundary of old Quebec.

PROVINCIAL AREAS.

It will make a great difference in the area of Ontario whether she secures or fails to secure the territory covered by the award.

By an Act of the Dominion Parliament, passed in 1881, the province of Manitoba was greatly enlarged, its eastern boundary being made to coincide with the western boundary of Ontario. As the latter is still unsettled it follows that part of the disputed territory will fall into Manitoba if Ontario loses it. This part has been computed to contain 39,000 square miles. With the addition of this territory the area of Manitoba would be about 154,000 square miles. If Ontario loses the 39,000 square miles to the west she will also lose the territory north of the height of land—that is, about 95,000 square miles in all—leaving her with an area of about 110,000 square miles. It is a matter of some interest to know that Quebec comprises nearly 200,000 square miles and British Columbia nearly 400,000. By reference to the "Notes" in the June number of the *School Journal* it will be seen that the four districts into which the Northwest territory has been divided—probably with a view to their ultimate erection into new provinces—have areas, respectively, of 95,000, 114,000, 100,000, and 122,000 square miles.

Mathematical Department.

INTERMEDIATE EXAMINATIONS.

JULY, 1882.

ARITHMETIC.

TIME—THREE HOURS.

1. The fore and hind wheels of a carriage are 9 and 12 feet in circumference respectively. There are two points, one in each circumference, at present in contact with the ground. Shew that as the carriage moves on, these points can never at the same time be the highest points of each wheel.

2. Reduce $\left\{ \dfrac{5\frac{1}{5}-\frac{1}{4}\text{ of }2\frac{2}{7}}{\frac{3}{5}\text{ of }4\frac{1}{6}+\frac{1}{12}} - \dfrac{859}{1085} \right\}$ of 3 lbs. to the fraction of 5 tons.

3. *Prove* that ·48732 is equal to $\dfrac{48684}{99900}$.

4. Find the present value of $320.00, due two years hence, at 8 per cent. per annum, compound interest.

5. Find approximately in how many years a given sum of money will double itself at 15 per cent. per annum, compound interest.

6. How large a bill of exchange on Paris can be bought for $1500.00 currency, exchange being at the rate of $1 for 5.25 francs, and gold at a premium of $8\frac{1}{2}$ per cent.?

7. On July 10th a banker discounts a note for $500.00, made May 10th, at six months, at the rate of 8 per cent. per annum. At what rate does he receive interest on his money?

8. *A* sells an article at a certain advance per cent. on the cost to *B*, who, in turn, at the same advance per cent., disposes of it for $19, finding that had he sold for $13 he would have lost per cent. $1\frac{1}{4}$ of what he now gains per cent. What did *A* pay for the article?

9. Equal weights of gold and silver are in value as 20 to 1; and equal volumes are in value as 1284 to 35. A certain volume is composed of equal weights of gold and silver; find how many times more valuable the same amount would be were it composed wholly of gold.

10. The volume of a sphere is found by multiplying the cube of the radius by 4·1888; and the area of a circle by multiplying the square of the radius by 3·1416. Find the area of a circle which by rotating about a diameter will describe a sphere whose volume is 1 cubic foot.

Values:—1, 10; 2, 8; 3, 7; 4, 8; 5, 9; 6, 9; 7, 10; 8, 13; 9, 13; 10, 13.

SOLUTIONS.

1. Let *A* be the given point in the fore-wheel and *B* in the hind wheel. *B* will be at the top when the carriage has moved on 6 feet, at which point *A* will have passed the top; *B* will again be at the top after 18 feet advance, at which point *A* will be on the ground; *B* will next arrive at the top after 30 feet advance, *A* will have passed the top; and after 36 feet progress, *A* and *B* will both be in the initial position in contact with the ground; and the same relative positions will be repeated over and over, through every 36 ft. forever, so that *A* and *B* can never be at the top simultaneously.

2. Fraction within brackets=1. $\therefore$ Ans. $=\dfrac{3}{10000}$

3. Book-work.

4. P. W. $= 320 \div (1{\cdot}08)^2 =$
$= 200000 \div (9\times9\times9) = \$274.348.$

5. Amt. of $1=1·73+, at end of 4th year
" " $1=2·011+, at " " 5th year. Ans. 5 yrs., nearly.

6. $1085 currency=$1000 gold, $100 gold= 525 francs, x francs =$1500 currency $\therefore x = \dfrac{1000\times525\times1500}{1085\times100} = 7258$ francs 7 centimes, nearly.

7. Banker pays $92 and receives back $100, *i. e.* int. $= \frac{8}{92} = 8·7\%$ nearly.

8. *B's* cost + *B's* gain=$19
B's cost $-\frac{5}{4}$ *B's* gain=$13
$\therefore \frac{9}{4}$ *B's* gain=$6, or *B's* gain=$$\frac{8}{3}$
$\therefore$ *B's* cost$=19-\frac{8}{3}=\frac{49}{3}=$ *A's* selling price
i. e. *B* gains 8 on 49, or $\frac{8}{49}$ per dollar invested.
$\therefore \frac{57}{49}$ *A's* cost $=$ $$\frac{49}{3}$
A's cost $=$ $14·04$\frac{16}{171}$.

The phrase "lost per cent. $1\frac{1}{4}$ of what he now gains per cent.,' we have taken to mean "$1\frac{1}{4}$ times what he now gains &c."

9. The mixture is evidently worth 21 times the silver in it. It contains a certain volume of silver; if this volume of silver were converted into gold it would be worth $\frac{1284}{35}$ of the silver now in the mixture; and the gold already present is worth 20 times the silver now in the mixture. Hence if all were gold the mass would be worth ($\frac{1284}{35}+20$) times the silver now in the mixture$=\frac{1984}{35}$ times the silver in mixture.

Hence $\frac{1984}{35} \div 21 = 2\frac{514}{735}$ times more valuable.

10. Observe that $4·1888=\frac{4}{3}$ of $3·1416$. Let $3·1416=\pi$, and radius of sphere and circle$=r$. Then we have given $\frac{4}{3}\pi r^3=1728$ cub in., to find πr^2.

We get $r=6\sqrt[3]{6}\div\sqrt[3]{\pi}$

$\therefore \pi r^2=36\sqrt[3]{36\pi}=36\sqrt[3]{36\times3·1416}=216\sqrt[3]{·5236}$
$=216\times·80593+=174·085+$ sq. inches.

ALGEBRA.

TIME—TWO HOURS AND A HALF.

1. Form an expression symmetrical with respect to x, y, z, u similar to $x^3+y^3+z^3-3xyz$; and write down the quotient on dividing it by $x+y+z+u$.

2. Factor $ax^3-(a+b)(x-y)xy-by^3$.

Deduce, or find by other means, the factors of
$(a+b)^3(x+y)-(x+2y+z)(a-c)(a+b)(b+c)-(b+c)^3(y+z)$.

Obtain four different relations between the quantities a, b, c, d, for any one of which the expression $4(ad-bc)^2-(a^2+d^2-b^2-c^2)^2$ will vanish.

3. Find the lowest common measure, not being a fraction, of the quantities $\frac{x^2+5x+6}{x+4}$ and $\frac{x^2+7x+12}{x+5}$.

4. Reduce to lowest terms the following fractions:—

(1) $\frac{6x^5-5x^4-1}{x^5-x^4-x+1}$. (2) $\frac{(a-b)(b-c)(c-a)}{(a-b)^3+(b-c)^3+(c-a)^3}$.

5. (1) If $y+z+u=a$, $z+u+x=b$, $u+x+y=c$, $x+y+z=d$, then

$$\frac{1}{1+\frac{a}{x}}+\frac{1}{1+\frac{b}{y}}+\frac{1}{1+\frac{c}{z}}+\frac{1}{1+\frac{d}{u}}=1.$$

(2) If $ax=b+c$, $by=c+a$, $cz=a+b$, then

$$\frac{1}{1+x}+\frac{1}{1+y}+\frac{1}{1+z}=1.$$

6. Solve the equation $ax^2+bx+c=0$.

What value of x will satisfy the equation

$$\frac{b-c}{x+a}+\frac{c-a}{x+b}+\frac{a-b}{x+c}=0.$$

7. Solve the equations

(1) $\frac{7x}{3}-\left\{\frac{1}{2}-\left(\frac{x}{3}-\frac{x-1}{2}\right)\right\}=\frac{4x-2}{5}$.

(2) $\frac{28}{x-4}-\frac{20}{x-3}=\frac{9}{x-5}-\frac{1}{x-1}$.

(3) $\begin{cases} x^4+x^2y^2+y^4=21 \\ x^2+xy+y^2=7. \end{cases}$

8. Solve the equations

$$\left.\begin{aligned} x+y+z&=6 \\ 3x+2y-z&=4 \\ x+3y+2z&=13 \end{aligned}\right\} \qquad \left.\begin{aligned} 3x-2y+5z&=4 \\ x-4y+z&=1 \\ 4x-6y+6z&=5 \end{aligned}\right\}$$

9. The edge of a cube is 3 feet. What must be taken as the unit of length that the number expressing the sum of the areas of the faces may be the same as that which expresses the sum of the lengths of the edges?

10. The hour, minute and second hands of a watch are on concentric axes, the same divisions on the dial answering for both minutes and seconds. Find when first between 3 and 4 o'clock the second hand will equally divide the interval between the minute and hour hands.

Values:—1, 1+3; 2, 4+5+5: 3, 4; 4, 5+6; 5, 5+3; 6, 5+7; 7, 4+6+7; 8, 7+8; 9, 7; 10, 8.

SOLUTIONS.

1. *i.* $x^3+y^3+z^3+u^3-3(xyz+xyu+xzu+yzu)$

ii. $x^2+y^3+z^2+u^2-(xy+xz+xu+yz+yu+zu)$.

2. *i.* $(ax-by)(x^2-xy+y^2)$ Ans. Observe that a and b are involved only to a single power, hence arrange according to a and b as letters of reference, and the expression splits up as above.

ii. It is easily seen that this expression is (*i*) with $(x+y)$ for a, $y+z$ for b, $a+b$ for x, and $b+c$ for y. Hence substitute these values for x, y, a, and b in the result of (*i*) and we get

$$(ax+ay+bx-cy-bz-cz)(a^2+b^3+c^2+ab+bc-ac).$$

iii. Factor the expression, equate each factor to zero, and we get $a+b+c+d=a-b-c+d=-a+b+c-d=-a+b-c+d=0$ which may be put in the forms $a+b+c+d=0$; $a+d=b+c$; $a+c=b+d$.

3. Given fractions are $\frac{(x+3)(x+2)}{x+4}$ and $\frac{(x+4)(x+3)}{x+5}$ and $x+3$ is the measure. Without the limitation in the question it would have been $(x+3)\div(x+4)(x+5)$.

4. *i.* $(6x^4+x^3+x^2+x+1)\div(x^4-1)$

ii. Denominator $=3(a-b)(b-c)(c-a)$ $\therefore$ Ans. $=\frac{1}{3}$.

5. *i.* Fractions $=\frac{x}{a+x}+\frac{y}{b+y}+$ &c.

From given relations $x+y+z+u=a+x=b+y=$ &c.

$$\therefore \text{ sum } = \frac{x+y+z+u}{x+y+z+u}=1.$$

ii. Given $x=(b+c)\div a$, $\therefore 1+x=\frac{a+b+c}{a}$ and by symmetry

$$1+y=\frac{a+b+c}{b}, \text{ \&c.}$$

$$\therefore \text{ sum } =\frac{a+b+c}{a+b+c}=1$$

6. *i.* Transpose c, multiply through by $4a$, add b^2 to both sides, extract square root and we get $x=\left\{-b\pm\sqrt{b^2-4ac}\right\}\div 2a$

ii. Put the equation in the form

$$\left\{\frac{b-c}{1+\frac{a}{x}}+\frac{c-a}{1+\frac{b}{x}}+\frac{a-b}{1+\frac{c}{x}}\right\}=0$$

Observe that the sum of $b-c$, $c-a$, $a-b$ is 0

Now as x increases in value the fractions $\frac{a}{x}$, $\frac{b}{x}$, $\frac{c}{x}$ become less and less, and the denominators $1+\frac{a}{x}$, &c. approach nearer and nearer to 1. Thus when x is endlessly increased these denominators all become $=1$, and expression within bracket$=0$, *i. e.* the given equation becomes $0=0$ when $x=x$ which is therefore the root.

7. *i.* $x=-\frac{12}{41}$.

ii. Add each side separately and we get

$$\frac{8x-4}{(x-4)(x-3)}=\frac{8x-4}{(x-5)(x-1)}$$

$\therefore 8x-4=0$, and $(x-4)(x-3)=(x-5)(x-1)$ *i. e.* $x=\frac{1}{2}$ or 7.

iii. Dividing we have $x^2-xy+y^2=3$, $\therefore xy=2$, and $(x+y)^2=9$, $(x-y)^2=1$ &c. $x=\pm 2, \pm 1$.

$y=\pm 1, \pm 2$.

8. *i.* $x=1$, $y=2$, $z=3$.

ii. The equations are insufficient to determine x, y and z, for the third is simply the sum of the first and second, and we can only establish a relation between any two. The number of *independent* equations is not equal to the number of unknown quantities.

9. A cube has six faces and twelve edges. If x be the length of an edge, we require to have $6x^2=12x$, or $x=2$, *i. e.* the length of the edge must be two units. Hence in the case given 3 ft. must be two units, and the unit = 18 inches.

10. At 3 o'clock the minute hand and the second hand are both at XII, and the hour hand at III. Let x=space moved by hour hand before second hand gets midway between the other two hands, $\therefore$ $12x$=space travelled by minute hand, and $720x$=space by second hand. Thus the second hand must be $708x$ ahead of the minute hand=distance behind hour hand, $\therefore$ $707x$=distance of second hand from III $\therefore$ $720x+707x$=distance from XII to III=15 minutes.

i. e. $x=\frac{15}{1427}$ minute divisions passed by hour hand.

$\therefore$ Second hand has moved $\frac{15\times 720}{1427}$ minute divisions = number of seconds the clock has measured $=7\frac{311}{1427}$.

NATURAL PHILOSOPHY.

Time—Two Hours and a Half.

1. A beam 14 feet long is supported at both ends; a weight of 1200 pounds is suspended 4 ft. from the centre. Find the pressure at each point of support. (Weight of beam to be neglected).

What power (in pounds) is required to draw a train of cars, weighing 158 tons, up a railway grade rising 10 inches in every 100 feet? (Friction to be neglected.)

3. Given the diameters of the two cylinders of a hydrostatic press and the force applied to the piston, determine the pressure produced.

4. A man exerting all his strength can just raise 230 pounds. What would be the weight of a stone (spec. gr. 2·9) which he could just raise under water?

5. To what height will glycerine (spec. gr. 1·27) rise in a Toricellian tube when the barometer stands at 30·5 inches, specific gravity of mercury being 14?

6. Describe a simple experiment to illustrate

(i.) The buoyancy of the air, and

(ii.) The variation of the buoyancy, with the barometric pressure of the air.

7. A power of 12 pounds on a wheel, the diameter of which is 8 feet, balances a weight of 280 pounds on the axle, what is the diameter of the axle, the thickness of the rope on the wheel being one inch, on the axle two inches? (The rope regarded as perfectly flexible, and the whole weight being supposed to act along its centre.)

8. Describe Nicholson's Hydrometer.

9. Distinguish between

(i.) Mass and weight;

(ii.) Density and specific gravity.

10. Define the term "equilibrium," and distinguish between stable and unstable equilibrium.

11. Demonstrate that two liquids will be in equilibrium in communicating vessels, when the altitudes of their columns are to each other inversely as their specific gravities.

Values.—1, 10; 2, 10; 3, 10; 4, 10; 5, 10; 6, (5+5) 10; 7, 10; 8, 5; 9, 10; 10, 5; 11, 10.

SOLUTIONS.

1. Let x, and $1200-x$ be pressures; 3 ft. and 11 ft. from point of suspension $\therefore (1200-x)3=11x$, $\therefore$ pressures$=257\frac{1}{7}$ and $942\frac{6}{7}$.

2. When power acts parallel to plane $P\times L=W\times H \therefore P=W\times H \div L=158\times 2000\times \frac{10}{12}\div 100=2633\frac{1}{3}$ lbs.

3. If r and r_1 be the radii of the cylinders, then pressure $=\frac{\pi r^2}{\pi r_1^2}\times$ pressure on piston $=\frac{4r^2}{4r_1^2}\times P=\frac{d^2}{d_1^2}\times P$, where d and d_1, are the diameters of the cylinders, and P the pressure on the piston.

4. 2·9 times the weight of an equal volume of water, =weight in air $\therefore$ 1·9 " " " " " , = " water $\therefore$ weight of stone in air $=\frac{29}{19}\times 230=351\frac{1}{19}$ lbs.

5. Let x= height in inches, $\therefore 127x=14\times 3050 \therefore x=336\cdot 22$ in.

6. Book-work. (7) $P\times R=W\times r$ where $R=48\frac{1}{2}$ inches, P=12 and W=280lbs. $\therefore r=8\frac{11}{35}$ inches, $\therefore 7\frac{11}{35}$=radius and $14\frac{22}{35}$= diameter of axle.

8. Book-work.

9. *Mass* is the quantity of matter a body contains irrespective of its volume which may vary considerably while the mass remains constant. The mass is measured by its *weight* which is the effect produced by gravity on the mass. *Mass* is a collection of matter, *weight* is a property of matter; the former is a substance, the latter a quality inherent in that substance and serving to measure the amount of substance present.

Density is the relation between the mass of a body and the volume of that body. The smaller a volume for a given mass, the greater the density and *vv.*

Specific gravity is the ratio which the density of a given body bears to the density of some standard substance, *e. g.*, hydrogen, air, or water.

10. Book-work. Kirkland p. 76, H. Smith p. 62.

11. Let s, s, be the specific gravities, and x and y the heights of the columns when equilibrium is attained.

$\therefore sx=s_1y$ or $x\div y=s_1\div s$. *Q. E. D.*

ANSWERS TO CORRESPONDENTS.

S. H. Parsons, Montreal, solves problem. 1, page 103, as follows:—Describe a triangle ABC whose sides shall be equal to the three given distances. On BC describe an equilateral triangle BCD exterior to ABC. Join AD, AD=side of given equilateral triangle. The steps then are; find the angle ACB having the three sides given; hence the angle ACD; and lastly the side AD.

(From the formula $a^2=b^2+c^2-2bc\cos A$. Ed.)

As it may not be clear to some of our readers that AD=side of equilateral triangle, the following construction may be helpful. Let ADK be the given equilateral triangle and C the point from which the given lines are drawn to the angular points. On CD describe the equilateral triangle CDB. C will fall outside the triangle ADK. Join BA, then $BA=CK$. For angle ADK=angle CDB, hence angle ADB=angle CDK, wherefore the triangles ADB and DCK are congruous, Euc. I. 4., thus $AB=CK$, and the triangle ABC has its sides respectively equal to the three given distances.

C. McKay, Seaforth, shows that the answer given to prob. 3 is not accurate. The other questions have not been answered by any of our correspondents.

Problems for Solution.

1. By Y. D. X., London. A right-angled triangle is suspended freely against a wall from its right angle; and again from one of the acute angles. The positions of the hypothenuse in these two cases are at right angles to each other. Compare the lengths of the sides of the triangle. Geometrical solution desired.

2. By Miss K. J., Hamilton. Two straight lines are drawn to the base of a triangle from the vertex, one bisecting the vertical angle, and the other bisecting the base. Prove that the latter is the greater of the two lines, when they are not equal.

3. By R. S., Brockville. Produce a given straight line so that the rectangle contained by the whole line thus produced and another given straight line may be equal to the square on the produced part.

4. By John Black, Galesboro, Illinois. A pole standing vertically on level ground, has a rope fastened to the top which just reaches the ground. When the end of the rope is drawn out x feet from the pole, its vertical distance from the ground is y feet. Find the height of the pole.

5. Solve $x^2-y^2=a^2$; $x^3+3xy^2=b^3$.

6. A man and his wife would empty a cask of beer in 16 days; after drinking together 6 days, the woman alone drank for 9 days more, and then there were 4 gallons remaining, and she had drunk altogether $3\frac{3}{4}$ gallons. Find the number of gallons in the cask at first. (By Arithmetic.)

7. Prove $\left(x-\frac{x^3}{|\underline{3}}+\frac{x^5}{|\underline{5}}-\ldots\ldots\right)^2+\left(1-\frac{x^2}{|\underline{2}}+\frac{x^4}{|\underline{4}}-\ldots\right)^2=1.$

8. The G. C. M. of two numbers is 16, and their L. C. M is 192, find the numbers.

9. On June 21, 1851, the Duke of Wellington had lived exactly 30,000 days. Find the date of his birth.

Special Articles.

INDUSTRIAL DRAWING IN CANADA.

The presence of Walter Smith, the distinguished Art Instructor, last year at the Provincial Educational Institute of New Brunswick, and this year at the similar gathering of Nova Scotia educationists, seems to have awakened considerable enthusiasm in both provinces. It may also be taken as a sign that the importance of drawing as an element in general education had already been recognized. It is no secret that certain difficulties have arisen between Professor Smith, or Walter Smith, as he prefers to be called, and some of the educational functionaries with whom he has been associated in Massachusetts in promoting the interests of art education. The value of the work done by him for that State in general and for the city of Boston in particular is, however, beyond dispute. Begun in 1871, it had attained such proportions and perfection in 1876, that the French Commissioners on Education sent to the Centennial Exhibition at Philadelphia reported to their government, that—"the public schools of Massachusetts presented a collective exhibit "extremely remarkable, the most complete of all, and the most "methodically arranged."

This is a quotation from the report of the Commission on the subject of industrial drawing in schools, which above all others they had made the matter of very analytic and exhaustive scrutiny. The practical experience drawn by the Commission from the exhibit of Massachusetts at Philadelphia, and from a personal inspection of the schools of Boston was as follows:

"It is necessary that France defend her pre-eminence in art, hitherto uncontested. With us, as elsewhere, it does not suffice to have excellent teachers of drawing; *it is necessary that all the teachers should be able to give the first instruction in drawing in the day classes to the entire school population.*"

This testimony from a Commission of educational experts representing, and belonging to, the most artistic nation in the world carries with it great weight. From 1876 to the present time the most satisfactory progress has been made in developing the work so auspiciously begun. That work has passed quite beyond the region of experiment. A definite, positive, experience has been stored up, and made available for the benefit of succeeding generations and other countries. Mr. Smith himself has some words on this point which are worth quoting:

"You cannot extemporize experience without help or guidance from external sources. Our progress (in Massachusetts) has been somewhat hindered by the existence and activity of sundry and manifold educational myths and delusions from which other branches of learning have been delivered by the sanitary, and winnowing, and deodorizing operation of time. If we had done nothing more than to test common beliefs about drawing, to clear the track of obstructions made by ignorance, to prepare the way and make straight in the desert a highway for coming generations, then and even then, the work done would be important and valuable, because of its initial character, for the first steps in a journey are as important as the last."

It is to be hoped that the efforts already made, and others that may yet be made, to secure for Canada the services of Mr. Smith, will be successful. Co-operation between the Provinces is absolutely necessary and could surely be secured by conference between the heads of the various Education Departments. Such an enterprise, if undertaken in an energetic and liberal spirit would add another strand to the tie that binds the Provinces of the Dominion together.

SECONDARY EDUCATION.

One of the must marked educational "signs of the times" is the deep and wide-spread interest in the subject of Secondary Education. In too many countries there is still a huge and unsightly gap between the common school and the university, and between the common school and institutions designed to impart purely professional training.

In Ontario, happily, much has been done to articulate symmetrically the various departments of the educational system. A straight road has been opened up, and kept open, by which the ambitious youth may pass from the primary school to the university; and whatever may be the ultimate effect of the new departmental regulations on high schools and collegiate institutes, they may at all events be taken as evidence that public attention had been actively directed to the status and work of those institutions, and that practical experiment in some shape was called for, in order at least to test the possibility of making them increasingly popular and efficient.

In Scotland the question of connecting the parochial schools with the national universities, by a class of efficient intermediate schools, is exciting interest. Dr. Donaldson, the well-known rector of the Edinburgh high school, on the occasion of his recent transference to Aberdeen, drew attention to this subject by his somewhat celebrated exposition of the lack of such secondary schools in Scotland and the consequences which it involves. As a matter of national concern, the question of supplying this lack has already been introduced into Parliament. An "Endowment Bill" has been introduced as a governme measu by Mr. Mundella, Under-Secretary of the Department of Educa n, with that end in view. Existing defects are plainly recognized. A graded system of schools, with provision for higher instruction in one school in each district, is proposed. It is also suggested that, by associated effort, secondary schools be established in central localities for the accommodation of the districts of several school boards. The bill, whose passage thus far through the House of Commons has been watched with deep interest by the people of Scotland, owes its title to the fact that it proposes to deal with certain quasi-educational endowments, the benefits of which have hitherto accrued but slightly to the support of education. A commission of seven members is created by the bill to reorganize these endowments in the interests of secondary education.

In Prussia the Minister of Public Instruction has prepared new schemes of study for all classes of secondary institutions. The publication of these regulations had been awaited with peculiar interest on account of the serious conflict of opinion which had prevailed as to the relative importance of classical and non-classical studies. A late number of *Education* gives an interesting outline of the new plans in relation to the institutions affected. The latter are:

(1) Gymnasia, classical schools preparing for the university; (2). Real-gymnasia, secondary schools preparing for higher technical schools and for the faculties of philosophy in the universities; (3). Ober-real-schules, non-classical secondary schools preparing for technical and commercial schools; (4). Higher burgher-schools, secondary schools preparing for industrial, lower technical and commercial schools. Gymnasia, real-gymnasia, and ober-real-schules have each nine classes; higher burgher-schools six. While the subjects of instruction in the gymnasia include German, Latin, Greek, and French, together with mathematics, physics, &c., in the real-gymnasia, Greek is omitted and English and chemistry introduced. In the ober-real-schule both Latin and Greek are omitted, chemistry and English being substituted therefor. In the higher burgher-schools physics is omitted as well as Latin and Greek, and English and natural philosophy introduced.

In the Maritime Provinces of the Dominion of Canada, particularly in Nova Scotia and New Brunswick, the subject of secondary education is receiving considerable attention, as will be seen by reference to late reports of the respective superintendents of education. Neither the county academies of the former, nor the grammar schools of the latter province, seem to be working with perfectly satisfactory results, though some of them are efficient institutions. In fact few high schools in the Dominion have achieved more conspicuous success than the well-known Pictou Academy in Nova Scotia.

STONE-THROWERS IN A GLASS HOUSE.

To the Editor of the Canada School Journal.

The writers of the editorial articles in your neighbour and contemporary, the *Educational Monthly*, are constantly sneering at the style of the Minister of Education. I have yet to learn that ability to write perfect English is an essential qualification of any administrative officer, and therefore I am not going to defend Mr. Crooks from this kind of criticism. It is so easy to make slips in composition that any one may be pardoned for making them except that insufferable bore and nuisance, the self-constituted critic who is for ever correcting other people.

I have always noticed that this class of charlatans, like their fellow-snobs of the social order, are so intent in watching the slips of others that they are constantly making slips of their own, and the editorial writers of the *Monthly* are no exception to the rule. I propose, with your consent, to prove this assertion true by a reference to the editorial articles in the August number of that journal, and I confine my notice to the editorial articles because, as a rule, the contributors know how to write.

On page 301 I find the following sentence:

"The quoting of untranslated parallel passages from different Latin and Greek authors is of doubtful value to the ordinary Intermediate or University candidate, who is sure to look upon a *disjectum membrum* as a chimera to be avoided."

This is an instance of "mixed metaphors," for which the writer and not the supposititious candidate must be held responsible. On the same page I find:

"If the limits of the volume had permitted, we would like to have seen more translation."

The writer meant to say that he "would have liked to see," but evidently did not know how to do it. This form of error is so common, even amongst educated people, that it might be allowed to pass unchallenged except when perpetrated by the literary snob. Again, and still on the same page:

"In this way, in the first nine chapters, plants representing typical orders belonging to the exogens or dicotyledons are gone through with."

The "exogen or dicotyledon" is an individual plant, and in botanical classification the individual *belongs to* the order while the order *includes* the individual. The next sentence but one on the same page reads thus:

"In chapters twelve and thirteen the morphology of the various organs of plants is described."

"Morphology" means a description of forms, and this description of forms, the writer says, is described in the aforesaid chapter. He should have said either that the "morphology is treated of" or that the forms of the various organs are described. On page 303 I read:

"In written composition scholars are supplied with elliptical sentences to be filled in; are required to write a summary of a previous reading lesson, we presume with the heads of the lesson first arranged by themselves, or supplied to them by the teacher; to write sentences of a certain kind; to introduce grammatical equivalents, to paraphrase, to write original compositions," &c.

[illegible] sentence is, as it proceeds, made thoroughly unsymmetrical [illegible] the extent of the ellipsis. At first only the subje[illegible] terwards both subject and verb are left out. No good writer would construct such a sentence. On the same page we are told that there is a "difference *in* two schools" instead of *between* two schools. On page 300 the opinion is expressed that "it would not have been amiss to have added special questions" where the writer meant that it "would not have been amiss to add,' &c. But this particular error is so common in the *Monthly* as to induce me to believe that several members of the staff—notably its editor-in-chief—know very little about the laws that govern the sequence of tenses. I quote from the same page the following sentence which contains an excellent example of what the French call *construction louche*—"squinting construction"—the use of which is utterly inexcusable in any one pretending to have even an ordinary English education:

"It is not unreasonable to look, if not with disfavour, at least with apprehension, upon any organic changes in the Departmental Regulations he may wish to originate."

The writer in this sentence speaks of the origination of an entirely new set of regulations, whereas he meant to refer only to the orgination of organic changes in a set already in existence. The next sentence is as follows:

"Unfortunately, moreover, his knowledge of the working of our school system, and the necessity that now and again arises for its reconstruction, is derived at second-hand."

By neglecting to keep his ellipses symmetrical the writer says what he does not mean, and says it ungrammatically. As the sentence stands, "knowledge" and "necessity" are co-ordinate with each other, whereas "working" and "necessity" are meant to be so. Look at this for "fine writing":

"But the Central Committee of late has become so mythical an organization, *that* we hardly know *that* it has palpable form and substance, or, if it has, *that* the Minister deigns to make use of it."

It is a pity that the use of "that" for "so" has since Shakespeare's time degenerated into a provincialism, for otherwise our "fine writer" might have put in another "that" when he is so fond of the word. On pages 305-306 I find this curious sentence:

"One thing is plain, however, that if the SCHOOL JOURNAL'S abstract is genuine, the Minister, in the Proposed Amended Regulations of the Department, has undertaken a heavy and rather astonishing task, and, in dealing with it, accepts a grave responsibility."

Passing over some other points I cannot help coming to the conclusion, from the peculiar use of the word "genuine," that the writer has read Bishop Watson's remarks on the terms "genuine" and "authentic," and, like *Little Buttercup* in "Pinafore," has mixed them up. Authorities are not agreed as to the precise force of "genuine" when applied to a literary production, but I cannot recall any definition of it which would justify the above use of the term. On page 306, speaking of some of the amendments, which commend themselves to common sense, the writer asserts that Mr. Crooks "has been forced to adopt them by enlightened public opinion;" the ordinary way of adopting them is by order-in-council. The following sentence from the same page contains another good example of squinting construction:—

"But Mr. Crooks is so wanting in sensitiveness of apprehension, and, constitutionally, is so little in sympathy with the teacher and his work, that it would seem futile to look to him *satisfactorily* to guide or govern educational opinion."

"Satisfactorily" can be construed quite as satisfactorily with what precedes as with what follows it—it looks two ways at once, like the cook who was described as being able to see into the pot with one eye while with the other she looked up the chimney. The *penchant* for "fine writing" is shown by the use of "would seem" instead of "seems," which correctly gives the writer's meaning. Further on, and still on the same page I learn that the Minister's "wordy flatulence is *only* equalled by his pretentious ignorance." As I do not like to answer a fool according to his folly I must say that the writer's vulgar malice is equalled *only* by his inability to put one of the most common adverbs in its right place in a sentence. On the same page I find "partizanship," while on page 305 I find "partisanship." Old English usage would justify the former; modern usage permits only the latter, and even if usage were more accommodating, the two forms should not appear side by side in the same article. On page 308 I find the expression, "reduction of the subjects," where the writer means a reduction in the number of subjects. On page 309 occurs this sentence:—

"It is, therefore, improper for Mr. Buchan to hold this position so long as he has charge of a school from which there may be, if there *has* not been, candidates for the "Intermediate."

I recommend the correction of this sentence, and others similarly constructed, as a grammatical exercise admirably adapted to the capacity of candidates in training for the entrance examination. On page 310 I learn that the examiner who prepared the grammar paper for first class candidates at the recent midsummer examinations "cribbed" questions "from Fleming, Bain, and Morris's Elementary Grammars," that is, from a series of such grammars prepared by a firm under the style of "Fleming, Bain, and Morris." If it does not mean that, then it must mean that the questions were taken from Fleming's, Bain's, and Morris's Elementary Grammars. On the same page I find the same writer making use of the expression, "either about their utility or their inutility," when he meant either "about either their utility or their inutility," or "either about their utility or about their inutility;" and this reminds me that—to use an expression of Sidney Smith's—since I am pursuing him not from the love of glory but from the love of utility, as a burgomaster hunts a rat in a Dutch dyke, I may as well drop the pursuit when I have run him fairly down.

I do not wish your readers to carry off the idea that the July-August number of the *Monthly* is below the average in point of literary excellence. On the contrary, it is not so open to criticism as some others through which I have cursorily glanced. Let me in conclusion quote, for the benefit of the linguistic critic of the *Monthly*, the lines addressed by Pope to literary critics in general:

"But you who seek to give and merit fame,
And justly bear a critic's noble name,
Be sure yourself and your own reach to know,
How far your genius, taste, and learning go;
Launch not beyond your depth, but be discreet,
And mark that spot where sense and dulness meet."

DELTA.

He that is thy friend indeed,
He will help thee in thy need;
If thou sorrow, he will weep;
If thou wake he cannot sleep;
Thus of every grief in heart
He with thee doth bear a part,
These are certain signs to know
Faithful friend from flattering foe.

—*Shakespeare.*

Examination Questions.

PROMOTION EXAMINATION.

DIVISION NO. I, COUNTY LAMBTON,

GEOGRAPHY.—II TO III CLASS.

1. Define island, bay, desert, cape ; giving two examples of each.
2. Name the principal lakes between the United States and Canada.
3. What is the capital of each of the following : Alaska, Canada, United States, Quebec, Manitoba, Mexico.
4. Name the principal rivers and mountains of North America.
5. Name the railroads in Lambton, and tell on which are the following stations : Alvinston, Thedford, Point Edward, Wyoming, Watford, Courtwright.

III TO IV CLASS.

1. Define estuary, meridian, oasis, geography.
2. Name the principal mineral products of Canada, and the vegetable products of United States.
3. Where and what are Emerson, New Orleans, Peel, Credit Valley, Miramichi, St. Louis, Norman's Woe, Beaver, Truro, Strathroy.
4. Draw a map of the Dominion, locating the mountains, rivers, the and the principal railways.
5. Mention the largest river that empties into the Caspian, Black and Mediterranean Seas, and state the outlets of the Black and Mediterranean Seas.
6. What is the general direction of the mountain systems of the old world; 2nd, of the new world.

Values— from II to III class, each question 20 marks.

Values from III to IV class, 1=12, 2=14, 3=18.=4=36, 5=12, 6=8.

GRAMMAR—III TO IV.

1. (*a*) Define "gender," "preposition," "adverb," "sentence," "vowel."

(*b*) Write the feminine forms of "giant," "heir," "nephew." "youth," "colt," "earl," "beau," "papa," "sir," "bridegroom."

2. (*a*) What is meant by *inflection?*

(*b*) What are the inflections of the noun?

(*c*) Write the possessive singular and plural of *child, ox, boy, fly.*

(*d*) Parse all the nouns in the following :—"So ended Hannibal's first campaign in Italy."

3. (*a*) Define *number.*

(*b*) Write sentences containing the singular forms of the following verbs:—"go," "were," "sing," "shake"

(*c*) Write two sentences, one containing the word *which* in the singular, and the other the word *which* in the plural,

(*d*) Make two sentences containing the word "whom."

(*e*) Which is correct "monies" or "moneys"? Why?

4. Analyze
   (*a*) "So ended Hannibal's first campaign in Italy."
   (*b*) The wolves having regained their feet, sprang directly towards me.
   (*c*) "Ah," said Mr. Grant, "my saying was true."
   (*d*) There were no men there.

5. Combine the following statements into longer sentences :—The boy wrote. He was a good boy. He wrote a letter. He wrote to his father. He wrote on his birthday. The boy was at school. It was a long letter. He wrote it early in the morning. He wrote it before breakfast.

Values—1. 15; 2, 20; 3, 30 ; 4. 20 ; 5, 15.

IV TO V CLASS.

1. Parse the words in italics in the following :

It is but too *common,* my *countrymen, to observe* a material difference *between* the behavior of *those who stand candidates* for places of power and trust *before* and *after receiving them.*

2. Analyze the following :

The history of the world is full of testimony to prove how much depends upon industry. Not an eminent orator has lived but is an example of it.

3. Define :

(*a*) Collective noun, relative pronoun, adverbial phrase, and write sentences containing an example of each.

(*b*) Write possessive plural of child, John, artist ; and the possessive singular of conscience, deer, scissors.

(*c*) Write plurals of courtmartial, Mussulman, handful.

(*d*) Compare far, ill, gay, square, extreme.

(*e*) Give the principal parts, including the present participle of the following verbs :—be, lie, lay, sit, set, go.

4. (*a*) Explain the meaning of the following:

Excuse my writing more.

Excuse my not writing more.

(*b*) Correct or justify, giving reasons :

There are few artists who draw horses as well as Mr. Jones.

(*c*) Distinguish sanitary, and sanatory ; stationary and stationery ; place and plaice ; threw and through.

5. Write a composition of ten lines on Summer, paying attention to style, grammar and writing.

Values 1, 30; 2, 14 ; 3, 26 ; 4, (*a*) 5. (*b*) 5. (*c*) 5; 5, 15.

SPELLING—I TO II CLASS.

The cents they could spare. Safely through the night. Heard of the tricks. The deep boom of the surf. Young lion's whelp. Friends now tease him. Tact with his horse. Teacher did reply. Birds of rich voice and bright hues flew in the groves. Owl caught the snake. The surest way to be happy. Squirrel, naughty, straight, ceiling, foolish, minutes, romps, written, given, endless, peace.

II TO III CLASS.

Sentenced to be hanged. Seeing so valued a friend. Served in Parliament. Conquered France. Constantly refused his earnest wishes. Patience. Diverting tricks. A moment's reckless folly. Deliberate opinion. The proposal was readily acceded to. Pleasantly surprised. Too. Complaisance of his master. Demurred, dolefully, merely, luscious, clever, tortoise, tormentor, special, knighted, guidance, perseverance, separated, plagues, ponderous, cruel, feathers.

III TO IV CLASS.

Third book, page 232, Arriving—ammunition. Third book, page 83, Delighted——many months. Equitable, scampering, contemporaries, promiscuous, cutlass, marines, extremely, odoriferous, sepulchre, regretting, expedition, ramparts, sallies, cannibals, superstitious, paroxysm, venison, individuals.

IV TO V CLASS.

Fourth book, page 15, In all probability—supplies. Fourth book, page 89, Before he died——enemy. Enormous buttresses. Assuaged their appetites. Suzerain or feudal lord. Achievement. Sanguinary broils of politics. Bitterly regretted. Obsequies, cavalcade, heroically; antagonist, persuaded.

Three marks off for each error in all classes.

ARITHMETIC—I TO II CLASS.

1. Write in words 147, 106, 9037.

Write in figures four hundred and seventy, thirteen thousand five hundred and six.

2. Find the sum of 4736+71084+736+74+908362, and seven hundred and three.
3. A man earns $90 per month, he pays $15 a month for house rent, and $40 per month for other expenses, how much money will he have at the end of three months?
4. A had $20, B had three times as much, less $10, and C $15 more than A and B. How much had they all?
5. From 90372986 take 30382997.
6. A man has $2,000, which he gives to his three boys, to the first $500, to the second, $275 more than the 1st, and the 3rd the rest. How much did the 3rd get.

Values—1, 12 : 2, 10 ; 3, 20 ; 4, 30 ; 5, 18 ; 6, 10 ;

Note—Nos. 2 and 5 to be absolutely correct, or no credit.

CLASS II TO III.

1. Express 30030030 in words, and sixty-seven thousand and forty-six in figures.
2. Express the following in figures : XIX, XCIV, XXXIX.
3. Multiply 9908807 by 90720400, and divide the product by 56708.
4. Two persons start at the same point and travel in opposite directions, one at the rate of 34 miles a day, and the other at the rate of 28 miles a day ; how far apart will they be at the end of 14 days?

5. Bought 9 chests of tea, each containing 72 pounds, at 57 cents per pound. Sold 239 pounds at 68 cents per pound, and the remainder at cost. How much did I gain on each pound?

6. A flour merchant bought a quantity of flour for $18,750, and sold the same for $26,250, by which he gained $3 a barrel. How many barrels were there?

NOTE—3. to be absolutely correct or no credit given.

Values—1, 10; 2, 9; 3, 21; 4, 20; 5, 20; 6, 20.

III TO IV CLASS.

1. (*a*) Find the least number which can be divided by 7, 12, 15' and 24, with a remainder 3 in each case.

(*b*) Find the greatest number which will divide 6332 and 23999, leaving as remainders 5 and 2 respectively.

2. (*a*) Simplify $3\frac{3}{8}$ of $\frac{9}{22} + 7\frac{1}{2} - 4\frac{1311}{5244}$ of $\frac{1}{34} + \frac{3}{32}$

(*b*) Reduce $\frac{31652852}{71218917}$ to its lowest terms.

3. Which is greater $\frac{3\frac{3}{8}}{54/7}$ of $\frac{5}{21}$ or $\frac{7}{60}$?

4. Reduce 3 miles 5 fur. 10 per. 880 yds. to furlongs.

5. Four thousand soldiers were supplied with bread for 24 weeks, each man to receive 14 ounces per day; but by some accident 210 barrels containing 200 lbs. each were spoiled; what must each man receive per day in order that the remainder may last the same time?

6. Divide $350 among A, B, and C, so that as often as A gets $5 B may get $4, and as often as B gets $3, C may get $2.

7. A merchant bought goods to the value of $4400, and sold them for $4950. What fraction of cost was the gain?

8. A grain dealer bought oats at 40 cents per bushel; at what price per bushel must he sell them in order that the money he receives for 48 bushels, may be equal to his gain on $179.20 of outlay?

Values—1, 10, (*i.e*) 5+5; 2, 5+5; 3, 5; 4, 10: 5, 10; 6, 20; 7, 10; 8, 25.

CLASS IV TO V.

1. Simplify $\frac{2\frac{1}{2}}{1\frac{1}{3}} + 4{\cdot}3 \left\{ \frac{7}{8} \text{ of } \frac{7\frac{2}{3}}{6\frac{1}{2}} + 2{\cdot}1 \right\} \div \frac{1}{3}$

2. Find G. C. M. of 17598, 46090 and 171347.

3. A stationer sold pens at 10s. 6d. a thousand, by which he cleared $\frac{1}{3}$ of his money; but growing scarce he raised them to 12s. per thousand. What fraction of the cost did he clear at the latter price?

4. A man bought 17 bales cotton goods containing $587\frac{1}{2}$ yds. at $8\frac{3}{4}$ cents per yd; he sold $\frac{1}{3}$ of it at $11\frac{1}{2}$ cents per yd. and $\frac{3}{4}$ of the remainder at $12\frac{1}{2}$ cents per yd. How much would he get for what he has left at 13 cents per yd. and what would be his total gain?

5. (*a*) Multiply 0·00524486 by 0·99993682.

(Note.) Fifteen marks for this question if done by contracted method.

Seven marks for this question if done by ordinary method.

(*b*) Divide 0·30679006 by 0·27610603.

(Note) Fifteen marks for contracted method; eight for ordinary method.

6. Divide 18328 by the prime factors of 385 and show how to find the true remainder.

7. A can build a wall in 16 days; A and B in 10 days. After $\frac{1}{4}$ of it is built, in what time can B finish it.

Values—1, 10; 2, 8; 3, 14; 4, 18; 6, 10; 7, 10; 5 as given above.

CANADIAN HISTORY—CLASS III TO IV.

1. Date the following: Champlain came to Canada. Champlain became Governor. Representative Government introduced. Union Act passed. Dominion of Canada formed.

2 Describe any *two* of the following:—Quebec Act, War of 1812-13. Rebellion of 1837. U. E. Loyalists.

3. (*a*) What form of Government have we in Canada?

(*b*) Who is Lieutenant-Governor of Quebec, Manitoba, and P. E. Island?

(*c*) Who is Premier of Ontario?

(*d*) Who is Premier of the Dominion?

(*e*) What are some of the conditions of the Union Act, and when passed?

(*f*) When was Canada formally ceded to England?

Values—1, 15; 2. 30; 3, 55.

REGULATIONS.

1. Each pupil must get 50 per cent. over the field and 25 per cent. on each subject, and at least 50 per cent. in spelling.

2. Teachers may prepare for themselves additional papers in 4th promotion to 5th Class; sending a copy of them to inspector.

3. Teachers will read and mark the papers and remit a report, together with the papers of the Candidates *who pass*, to the P. S. Inspector as soon as possible after close of Examination, and sign the following:

I certify that the Examination Papers were not opened until the morning of the Examination, and that the Examination was conducted fairly and honestly in every respect.

.....TEACHER

MANITOBA TEACHERS' EXAMINATIONS.

PROTESTANT SECTION.—1882.

ENGLISH GRAMMAR.

EXAMINER—A. BOWERMAN, M.A.

Time—Two Hours. Third Class.

1. Parse:—The sun being now nearly twenty degrees above the horizon, our mountain shepherds thought themselves justified in leaving their flocks to graze a little while untended.

2. Analyze:—Having received the usual permission from the surgeon—there being no sickness on board—we cast anchor in the roads opposite St. James' Valley, within a quarter of a mile from the island.

3. Write the plural nominative of sheep, species, beau, cherub, solo, Mr.; the possessive singular and plural of chimney, sky, lass; the comparative and superlative degrees of: many, tedious, holy; and the past tense, present participle, and past participle of: rear, beseech, singe, dun, die, ply.

4. Correct any mistakes in the following sentences, giving your reasons:

1. I seen him a good ways up the street.
2. Me and you was both at school together.
3. That there figure didn't ought to have been substracted.
4. That is a secret between him and me.
5. I did it just like you did.

5. Classify adjectives, and give an example for each class.

6. (*a*) After what verbs is *to*, the sign of the infinitive omitted;

(*b*.) What are the relative pronouns? Decline them and explain the difference in their use.

ENGLISH GRAMMAR.

EXAMINER—A. BOWERMAN, M. A.

Time—Two Hours—First and Second Classes.

1. This would surpass
Common revenge and interrupt his joy
In our confusion and our joy upraise
In his disturbance; when his darling sons,
Hurled headlong *to partake* with us, shall curse
Their frail original, and faded bliss,
Faded so soon. Advise, if this be worth
Attempting, or to sit in darkness here
Hatching vain empires.—— Thus Beelzebub
Pleaded his devilish counsel, first devised
By Satan, and in part proposed: *for* whence
But *from* the author of all ill, could spring
So deep a malice, *to confound* the race
Of mankind in one root, and earth with Hell
To mingle and involve, *done all to spite*
The great Creator?

—*Milton, Par. Lost.*

(*a*.) Analyze fully from: "Advise, if this be worth attempting," to the end.

(*b*.) Parse the words printed in italics.

(*c*). Derive the following: Common, joy, frail, empire, malice, original, surpass.

2. By what tests would you decide a verb to be in the Subjunctive Mood.

Parse the verbs in the following sentences, giving reasons for the mood and tense you assign:

If he be here, I can not see him.
If he is here, he will tell all our secrets.
If he were here, he would speak.
If he had been ill, his friend would have written.
If he is stupid, that is no reason you should insult him.

3. Give a full and careful account of the form and functions of the Absolute construction in English. Give examples to illustrate, and compare with other constructions by changing from one to the other.

4. (*a.*) Accentuate: inventory, deficit, commandant, decorous, inquiry, desultory.

(*b.*) Does rise (noun) rhyme with pries or with mice?
Has the *s*, in excursion, the same sound as in evasion or as in in tension?
What word gives a correct rhyme with vase?
What word gives a correct rhyme with haunt?

(*c.*) What is the derivation of:

Sound, whole. Count, a title of honor,
Sound, a strait. Count to reckon.
Sound, a noise.

(*d.*) Why has coveted one *t*, and regretted two?
Why is courageous spelled *éous*, and grievous *ous*?
Why has millennium two *l's* and two *n's*?

5. Criticise and correct what you think wrong in the following:—

"You have hindered instead of helped me."

"Here lies John Brown, born July 25th, 1818, died October 12th, 1854."

"You have not acted like your brother did."

"John Milton, for some time Latin Secretary of the Commonwealth, and who wrote Paradise Lost, the greatest poem of this or of any other age, was born in London."

"Johnston's Lives is being reprinted."

"Sense and not riches win esteem."

"A boy of about 13 years of age, claiming to belong to Derby, Vermont, and that he was left by his father in the city, was found by the police on Maria Street."

"I would like to have you come."

6. Define with examples, Gerundial Infinitive, Auxiliary Verb Impersonal Verb, Substantive Verb, Verb of Incomplete Predication.

What is meant by Sequence of Tenses?

7. Explain the construction of the words in italics:—

He is taller *than* I.
The more he has, *the more* he wants.
It was John who did it.

ENGLISH LITERATURE.

EXAMINER—T. C. L. ARMSTRONG, M. A., L. L. B.

Time—Two Hours.

1. Characterize briefly the early Anglo-Saxon poetry of England, and name some of the works and writers.

2. Write a short account of the origin and growth of the English Drama.

3. Name the authors of the following works, and ascribe each to its proper literary class: Ormulum, Shepherd's Calendar, Edward II., The Tempest, Cato, Dunciad, The Excursion, Rokeby, Lycidas, In Memoriam.

4. What has been the influence of the Literatures of France, Germany, Italy and Greece, respectively on our Literature?

5. Which is the chief lyrical age of our Literature? Name some of our chief lyrists.

6. Describe and mention an instance of each of the following: Ballad, Metrical Romance, Sonnet, Ode, Epic, Monograph.

7. Name some of the novelists and historians of the 18th century with their chief works.

Compare Gray and Pope as poets.

HISTORY.

Time—Three Hours. Third Class.

1. Give a brief description of Britain under Roman rule. What have we still in England to remind us of Roman occupation?

2. Mention the leading events of the reign of Henry I.

3. What is meant by The Hundred years' War? Give an account of any two battles fought in that war.

4. Describe briefly the struggle between Charles I., and his parliament.

5. Give an account of the Rye-House Plot and the Bloody Assize.

6. Mention the chief Legislative Acts of the reign of William III.

7. Sketch the Crimean War and the Indian Mutiny.

8. Describe Champlain's first voyage to Canada and give an account of the founding of Quebec with date.

9. Describe the capture of Quebec by the British.

10. Discuss the conduct of Lord Durham, Governor-General during the rebellion in Lower Canada.

11. Give the provisions of the North American Act and describe the assassination of Thomas D'Arcy McGee.

12. Write a brief account of the Red River Rebellion.

HISTORY.

Time—Three Hours—Second Class.

1. Explain the following terms as applied to early English history:—*Aetheling, earl, churl, thane.* Explain also the nature of Government under the early Saxon kings.

2. Describe briefly the Conquest of England by William of Normandy. Give the conqueror's chief acts.

3. Describe the social condition of England under the Tudors.

4. Give an account of the Dutch War in the reign of Charles II., and give the provisions of the Treaty of Dover.

5. Give the main features of the following: Magna Charta, Habeas Corpus Act, and Petition of Rights.

6. Describe the battle of Culloden and explain the circumstances which led to this contest.

7. Sketch the Peninsular War and describe the battle of Waterloo.

8. Give a brief account of the career of Napoleon Bonaparte.

9. Describe the discoveries and explorations of Jacques Cartier and LaSalle.

10. Give an account of Pepperel's conquest of Louisburg. Give the conditions of the Peace of Aix la Chapelle with its date.

11. Describe the Rebellion in Upper Canada in 1836—37.

12. Give the main provisions of the Washington Treaty and mention the circumstances which led to its formation.

HISTORY.

EXAMINER—REV. CANON MATHESON, B. D.

Time—Three Hours. First Class.

1. Give an account of the origin of the Greek race. Describe briefly the manners, customs and Government of Greece in the Heroic Age.

2. Explain the nature of the Peloponnesian war. Mention the chief men who figured in it. Describe the circumstances under which Greece became a Roman Province, giving the date.

3. When was the city of Rome built? Describe the grievances of the Plebeians in Rome aud their efforts to gain their rights.

4. Give a full account of any two of the following battles: Heraclea, Trebea, Cannae, Actium. Name the principal Roman Prose writers.

5. Sketch the chief events in British History up to the time of the English Conquest.

6. Give some account of Dunstan and his adminstration. Write brief notes on Baeda's life.

7. Name the Sovereigns of the Tudor Period, giving their dates. Mention the various authors who flourished under the Tudors and their chief works. Give an account of the Star Chamber.

8. Describe the character of Oliver Cromwell. Discuss his foreign policy and his rule at home.

9. Describe the character and adminstration of Sir Robert Walpole. When did he live.

10. What events led to the Crimean War? Give a brief account of the principal battles fought and the persons who figured in them.

11. Name the principal discoverers and explorers who appear in early Canadian History. Give a full account of two of them.

12. When was the "Union of the Canadas" effected? Give the terms of union.

GEOGRAPHY.

EXAMINER—E. L. BYINGTON, M.A.

Time—Two Hours.

1. Explain *Perihelion, Apogee, Solstice ,Zodiac, Ecliptic.*
2. Classify Tides. Draw diagrams to illustrate. State their causes.
3. Show clearly why the Arctic Circle is $23\frac{1}{2}°$ (nearly) from the Pole.
4. If the earth's axes made an angle of 30° with a perpendicular to the plane of its orbit, what changes would follow?
5. What is the jurisdiction of the Dominion Government as distinguished from that of the Provincial Governments?
6. Where does Canada get her supplies of *Carpets, Sugars, Lace, Cork, Canned Salmon,* and *Wine?*
7. Name the Mediterranean seaports of Egypt, Spain, and France.
8. Name the cities on the *Rhine* and *Danube.*
9. Name the foreign possessions of France, Portugal, and Holland.
10. What are the forms of Government, Religion and Capital of each of the following countries: Egypt, Chili, Australia, Russia, England?
11. What and where are the following: Gallinas, Pamlico, Socotra, Elsinore, Calgary, Prague, Riga, Miquelon, Auckland, Yellow-Head?
12. To what nation do the following belong: New Guinea, Hayti, Society Islands, Celebes, Heligoland, Sumatra, Ushant, Puerto Rico, Jersey Islands, Philippine Islands.
13. Name the Lake expansions of the Shannon and Ottawa rivers.

COMPOSITION.

EXAMINER—STEWART MULVEY.

Time—Two Hours. Second and Third Classes.

1. State fully the uses of the following marks :—, ; : . ? ! ( ) — " "
2. What is meant by direct and indirect narrative; by grammatical and rhetorical order; by variety in the structure of sentences? Give examples.
3. Write a short essay on one of the following :—
   "Modern Inventions."
   "Character is a bundle of habits."
   "Famous men."

COMPOSITION.

EXAMINER—J. B. SOMERSET, ESQ.

Time—Two Hours. First Class.

1. Define the following, giving where you can, illustrative quotations or statements: Epigram, antithesis, irony, redundancy, tautology, paraphrase.
2. Point out any defects in construction or style that you may observe in the following, and re-write them, when necessary, in corrected form:
   (*a.*) "Particularly as to the affairs of this world, integrity hath many advantages over all the fine and artificial ways of dissimulation and deceit; it is much the plainer and easier, much the safer and more secure way of dealing with the world; it has less of trouble and difficulty, of entanglement and prosperity, of danger and hazard in it."
   (*b.*) "We came to our journey's end, at last, with no small difficulty, after much fatigue, through deep roads and bad weather."
3. Write an article, suitable for a newspaper or magazine on any one of the following :—
   "The Egyptian Question."
   "The Commercial Relations of the Old and New Worlds."
   "Immigration to the North-West."

SPELLING.

EXAMINER—T. L. C. ARMSTRONG, M.A., LL.B.

1. Mention some words of unsettled orthography. How does American spelling differ from English?
2. Account for the double letters in each of the following words: poor, beef, class, differ, deferring, proceed.
3. Account for any peculiarity in the spelling of the following words: dying, dyeing, knives, ladies, tongue.
4. Correct, where necessary, the following words: Inflammation, harrass, embarras, visitting, parrallel, consciencious, collonade, *personelle,* dipthong, metonymy, autonymy, dilligence, billious, bicicle, baillif, delible, irretrieviable, tennant, manouvre, grievious.
5. Add each of the terminations *y, er, ed, ing,* where possible, to each of the following words separately, making words in ordinary use: Try, lie, lay, stay, centre, fire, have, car, sky, glass, gravel.
6. Write to dictation the passage selected by the examiner.

BOTANY.

EXAMINER—REV. PROF. BRYCE, M.A., LL.B.

Time—One and a half hours—First Class.

1. Distinguish the stem from the root of the plant.
2. Describe a cotyledon, and show how the vegetable kingdom is divided on the basis of cotyledons.
3. What is meant by the "veining" of leaves, and explain the leading kinds of venation.
4. Explain the following terms applied to the shapes of leaves: Spathulate, sagittate, obovate, acicular and cuneate.
5. Describe the different parts of a stamen.
6. What are epiphytes and parasites, and give examples?
7. Give examples of plants that are sensitive to the touch.
8. Enumerate the varieties of underground stems.
9. How are fruits divided?

CHEMISTRY.

EXAMINER—REV. PROF. BRYCE, M. A., LL.B.

Time—One and a half hours—First Class.

1. Name the four elements spoken of by the ancients, and show to what extent they were elements.
2. Show the distinction between chemical and mechanical union.
3. Describe the physical qualities of the elements of common salt, and give the combining equivalents and specific gravities of these elements.
4. Give an account of the manufacture and uses of sulphuric acid.
5. What is an alkali? What is the color of the flame of potash and soda respectively?
6. Give the physical qualities of phosphorus, and describe and explain the phenomenon of burning phosphorus in a limited quantity of air.
7. What are the sources of supply, mode of manufacture, physical qualities, and uses of Iodine?
8. Name the leading ores of copper and its chief combinations. How would you detect copper in a mixture?

PHYSIOLOGY.

EXAMINER—REV. PROF. BRYCE, M.A., LL.B.

Time—One and a half hours—First Class.

1. Describe the bones of the human arm.
2. Give an account of blood corpuscles.
3. How is the blood propelled through the body and describe the mechanism of the organ which accomplishes this end?
4. Describe the lungs of a mammal, and show their use in the system.
5. What are the chief varieties of food stuffs?
6. Explain the use in the human organism of the gastric juice: of saliva; of the bile and pancreatic juice.
7. Explain shortly the process of digestion.
8. To what extent are animals warm, and how do you account for it?

SCHOOL ORGANIZATION AND MANAGEMENT.

EXAMINER—THE SUPERINTENDENT OF EDUCATION.

Time—Two hours.

1. How would you endeavor to secure the co-operation of parents in the management of your school?
2. Discuss the daily marking of recitations?
3. How would you encourage cleanliness, punctuality, and honesty in pupils?

4. How would you begin to teach (*a*) Dictation, (*b*) Composition, (*c*) History?
5. Discuss Object Lessons?
6. Show how "copying" tends to produce general demoralization in a school. What means would you adopt to prevent copying?
7. Compare the respective merits of written questions and answers, and of oral questioning and answering.
8. In teaching spelling would you rely on one, or more, of the senses? Give your reason for doing so.

Additional questions for 2nd and 1st class candidates:

FOR SECOND CLASS.

9. What do you understand by a "good education"?

FOR FIRST CLASS.

10. Give some of the qualities of good reading. What peculiarities of pronunciation may be observed among pupils?
11. Who was Frœbel? What special advantage did he seek to gain by his system?

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

The chemical combination and the volume of the (so-called) permanent gases, or perfect gases, like air, oxygen, hydrogen, nitrogen, carbonic oxide, and nitrous oxide are found to be regulated by simple laws. In the case of easily condensable gases like carbonic acid, hydrochloric acid, and ammonia, however, these laws do not hold with rigid precision when the gas approaches the condensing point, that is just before it becomes a liquid.

I. Boyle and Mariotte's Law.

The volume of a gas under constant temperature varies inversely as the pressure upon it, that is the volume becomes $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, &c. of the initial volume as the pressure is increased to 2, 3, 4, 5, &c. times the original pressure: also the volume becomes 2, 3, 4, 5, &c. times the initial volume when the pressure on the gas is reduced to $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, &c. of the original pressure. This law is fully discussed in Hydrostatics, to which the student should now refer for problems. He should also at this stage master the chapter in Hydrostatics on thermometers and thermometric scales, and become familiar with the metric system of weights and measures which is now generally adopted in scientific works.

No limit has been found to this law, the gas expands or contracts very nearly uniformly. If the volume is kept constant while the pressure increases or diminishes, then the density of the gas varies as the pressure, that is 2, 3, 4, 5, &c. times the original weight of gas, or $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ times that weight are contained in the same space according as the pressure has been increased or diminished 2, 3, 4, 5, &c. times.

See Hydrostatics—specific gravity, air-pump, barometer, and problems. The standard pressure to which we reduce gases for comparison is a pressure equal to the weight of 760 millimetres (mm.) or about thirty inches of mercury. This pressure is observed by means of the barometer.

Examples. 100 cubic inches of nitrogen collected when the barometer stands at 28 inches will contract to $\frac{28}{31}$ of 100 cubic inches when the barometer rises to 31 inches supposing the temperature to remain uniform.

Again, 100 litres of oxygen measured when the barometer stands at 760 mm. will expand to $\frac{760}{758}$ of 100 litres when the barometer falls to 758 mm., if the temperature remains unchanged. Also, gas at 762 mm., mercurial pressure, will expand to $\frac{762}{760}$ of its original volume when the pressure falls to 760 mm.; or gas at 760 mm. wil contract to $\frac{760}{762}$ of its initial volume when the pressure rises to 762 mm.

II. The Law of Charles and Gay Lussac.

The volume of a gas varies directly as its absolute temperature, which is found by adding 273° to the temperature by the centigrade scale, or 459° to the temperature expressed on the Fahrenheit scale.

It has been discovered that the following statement is very nearly correct for all permanent gases:

273 volumes at 0° C. become
274 " 1° C.
275 " 2° C., and so on without limit, increasing one volume for every rise of 1° C. in the temperature.

Also 273 volumes at 0° C. become
272 " — 1° C.
271 " — 2° C.
270 " — 3° C. and so on contracting one volume for every decrease of 1° C. in the temperature. If the law holds good beyond the temperatures we can actually reach by experiment, the volume of a gas must evidently cease to contract at — 273° C. This temperature is therefore called the *absolute zero* and corresponds to — 459° F. Hence on the *absolute scale of temperature*, 0° C. is 273°, and if the absolute scale is taken from Fah., 0° Fah. is 459° on the absolute, and the rule given above is manifest.

Examples. 100 litres of gas collected at 15° C. what will be the volume at 20° C, the barometer remaining unchanged? The absolute temperatures are 15 + 273, and 20 + 273, *i.e.*, 288° and 293°, and by the law of Charles the volume varies directly as the absolute temperature, hence 288 volumes will expand into 293 volumes, or 1 volume to $\frac{293}{288}$ and 100 volumes to $\frac{293}{288}$ of 100 volumes = 101·8 litres.

Again, 30 cubic inches of oxygen measured at 50° F., what is the volume when the temperature falls to 32° F.? The absolute temperatures are 509° and 491°.

Hence by the law 509 volumes will contract to 491
1 volume " " $\frac{491}{509}$
30 cubic inches " " $\frac{491}{509}$ of 30 cubic inches.

If, as is usual, corrections for both pressure and temperature are required we may easily combine the two results in one operation. Thus, 15 litres of hydrogen are collected under a pressure of 680 mm. and at 25° C. What volume will the gas occupy at 0° C. and 760 mm.? The pressure increases from 680 to 760, hence the volume decreases from 760 to 680, *i.e.*, 15 litres become $\frac{680}{760}$ of 15 litres.

The absolute temperatures are 298° and 273°, hence 298 volumes contract to 273, or 1 to $\frac{273}{298}$ liters.

The standard temperature is the melting point of ice that is 0° C.

Hence the $(\frac{680}{760} \times 15)$ litres will become $\frac{273}{298}(\frac{680}{760} \times 15) = 12 \cdot 293$ or 32° F. Thus the *standard conditions* used for comparing gases are 0° C. and 760 mm. pressure, or in English measures 32° F. and 30 inches barometric pressure.

III The Law of Avogadro and Ampere.

The weights of equal volumes of all perfect gases under like conditions of pressure and temperature are precisely identical with their atomic weights. Thus:

44·4 cubic in. of hydrogen weigh 1 grain under standard conditions.
44·4 " " oxygen " 16 " " "
44·4 " " nitrogen " 14 " " "
44·4 " " chlorine " 35·5 " " "
and so on for all substances that can be reduced to the gaseous form. Similarly in French measures.

11·2	litres of	hydrogen	at 0° C.	and 760 mm.	weigh	1	gram.
11·2	"	oxygen	"	"	"	16	"
11·2	"	nitrogen	"	"	"	14	"
11·2	"	chlorine	"	"	"	35·5	"

In *the case of compound gases*, the molecule generally occupies the same space as a molecule of hydrogen.

Thus, 11·2 litres of hydrogen and 11·2 litres of chlorine give 22·4 litres, *i.e.*, 2 (11·2)litres of HCl weighing $1 + 35{\cdot}5 = 36{\cdot}5$ grams. Hence 11·2 litres of HCl weigh $\frac{1}{2}$ of 36·5 grams = 18·25 grams, or one half the molecular weight of the gas. Again, twice 11·2 litres of hydrogen and 11·2 litres of oxygen unite to form 22·4 litres, *i.e.*, twice 11·2 litres of steam, weighing $2 + 16 = 18$ grams. Hence, 11·2 litres of steam weigh $\frac{1}{2}$ of 18 grams, that is one-half the molecular weight of the gas. The same thing is true of nearly every compound gas, so that it is generally stated that the density (or number of times heavier than the same volume of hydrogen) of a compound gas is equal to half its molecular weight. When we remember that the atomic weight of a compound gas is half the molecular weight, we see that the law covers compound gases as well as simple ones. The molecule of an element is composed of two atoms as O_2, Cl_2, &c., and the molecule of the compound gas occupies the same space as one of these, say the hydrogen molecule. Now it is the atom of hydrogen, not the molecule, which is taken as the unit, hence it is plain we must divide the weight of the compound molecule by 2 to compare it with the hydrogen atom. Thus carbonic oxide, CO, has two atoms in each molecule, one weighing 12 times and the other 16 times as much as the hydrogen atom. Each molecule of CO is therefore 28 times the weight of a hydrogen atom, but each molecule occupies twice the space that a hydrogen atom does. Therefore, as we compare equal volumes, the density of CO must be half of 28, or 14.

This law may be stated in several ways, but all amount to expressions of the same fact. The student should reduce the following statements to identities for himself. The weights of equal volumes of gases are identical with their atomic weights ; equal volumes of gases contain the same number of molecules; the molecules of all gases occupy the same space ; the densities of all gases are the same as their atomic weights ; the densities of gases are half their molecular weights.

Phosphorus, arsenic, arsenic trioxide, zinc, cadmium, and mercury in the form of vapors seem to be exceptions to the law. The weight of one volume of each of the first three is the same as the weight of four volumes of hydrogen, while that of the rest is only equal to the weight of one volume of hydrogen instead of two volumes, as required by the law. These apparent anomalies may yet be explained as the science advances.

In many works the weight of one litre of hydrogen under standard conditions is called a **Crith**, so that 11·2 criths (nearly) = 1 gram, or one crith = ·0896 gram (nearly). Also, we have 16 criths of hydrogen = 1 crith of oxygen, 14, 35·5, &c. criths of hydrogen = one of nitrogen, chlorine, &c.

It is plain that if we divide the weight of a molecule by the weight of one atom the quotient is the number of atoms in the molecule, in other words the molecular weight divided by the atomic weight gives the number of atoms. We can therefore determine the formula of a compound if we know its precentage composition.

Thus, if a compound have 72·73% of oxygen and 27·27% of carbon, we have

$$72{\cdot}73 \div 16 = 4{\cdot}5456$$
$$27{\cdot}27 \div 12 = 2{\cdot}2725$$

That is, the number of atoms of oxygen is to the number of atoms of carbon as 4·5456 : 2·2725, or, allowing for errors in experiment, as 2 : 1. Hence the formula is CO_2, C_2O_4, C_4O_8, or generally C_nO_{2n}. The simplest formula is CO_2, carbonic dioxide.

The process is simply the converse of finding the percentage of each ingredient when the formula is known: see previous lessons.

(To be continued.)

HOW TO TEACH COMPOSITION.

BY WILL. F. SMITH.

The teacher should give instruction to children of ten years of age and upwards on this all-important branch. Take a class o pupils whose members are capable of reading with ease, extracts from second reader. The first step is familiar conversation. Take some object with which the pupils are well acquainted and get them to tell you its parts and characteristics—*e. g.* The Cow.

Question—What has a cow ?
1st pupil—Horns and ears.
2nd " —Eyes.
3rd " —Tail, legs and mouth.
Question—What are the eyes for ?
Whole class—To see out of.

The teacher may here give briefly the real use of the eye and other organs. Bring up simple points as to the characteristics of the animal. Give a thorough drill on the subject and then say "Tell me what you know about the cow ?" They have the ideas and need only express them. By practice they will be enabled to tell intelligibly what they know. Do not at first hamper them with grammatical accuracies. If you do, you will but intimidate. Your first object is to secure, on the part of the children, self-confidence in relative conversation. Subsequently you may correct any ambiguous or loose construction, but do not be too emphatic on this score or confidence will be lost.

When the second class pupils have been promoted to the third reader, the teacher should read an extract which is expressed in simple language and on some non-abstract subject. Let it be read slowly and emphatically in order to impress the ideas upon the pupils. Then order them to produce the extract in their own language. It will be well to put the extract in their hands after it has been read, so that it will be purely a test of practical language growth. Simple subjects should always be taken at first for it is a language test required and not an inquiry into the child's knowledge or an incentive to imaginative productions. The aim is to have simple thoughts expressed in plain simple language. It will be well to place suggestive headings on the board in connection with the subject named. This will not be telling but will lead out the ideas. The direction of the stream is given and the source will thus be the more easily discovered and its affluents explored. Attention must now be given to the construction of sentences. Hand in hand with the subject of composition should go the subject and study of grammar. They are twin sisters of sensitive natures and must not be roughly treated or separated.

In most cases the only training a child gets in this important branch is by a subject assigned to be written on at home. The pupil will perhaps bring in a scrawl of ten or twelve lines of which the last two will be the startling fact that "This is all at present." This performance occurs in most cases once a week. The teacher may glance over them and say that they must be longer next time and this is the last of the study of composition for that week. Such dallying as this will be of little avail, if any.

In teaching a third class this subject I would advise a course something like this : On your time-table give this subject as much prominence as history or geography. Let there be a class in session twice a week, one subject only to be considered for the two lessons. In the first lesson commence as you would with the second class—have a familiar chit-chat on the subject. Draw out the ideas of the class individually. Place on the board one or two suggestive headings and ask the class for others. Having obtained a number of distinct leaders you may now search for the branches and twigs. Get all you can out of the class first and then draw out what is necessary by hints and suggestions. This accomplished, give a thorough drill on the ground gone over, and then dismiss the class. In the second lesson the teacher will repeat what was done in the first in order to save time. He will give what he considers necessary information and then order the class to "write upon the subject."

He should superintend and assist any one that is lagging, by a hint or two, and thus stimulate the class to exertion. About fifteen minutes should be allowed for the writing of the composition and ten minutes

for correction. The teacher will find a few or a great many mistakes common to the whole class. He should dwell upon these and have the pupils note them down with their other corrections. The teacher will now order the pupils to re-write their compositions at home. He will tell them to be very careful and not write down the mistakes instead of the corrections, and to bring in the matter in composition blanks neatly written. In this way the blanks will have a presentable appearance. The essay will not be compounded of sickly thoughts in garb so shattered as to render them the more repugnant by their uncouth exposure, but plain substantial ideas will be clothed in wholesome guise.

Notes and News.

ONTARIO.

J. H. Long, M. A., L. L. B., has been appointed to the assistant mastership vacated by Mr. Byington in the Cobourg collegiate institute. Mr. Long is a gold medalist in modern languages in the University of Toronto, and has had previous experience in work similar to that he is now undertaking. He has also enjoyed the great advantage of some years' experience as an examiner in his own university.

D. S. Paterson, M. A. (Tor.), has resigned the head mastership of the Chatham high school, to the great regret of the community. Few teachers have the good fortune to give as unqualified satisfaction as Mr. Paterson has done, and he carries with him into another profession the best wishes of all who know him.

J. E. Hodgson, M. A., having resigned the principalship of the Brantford collegiate institute on his appointment as inspector of high schools, a worthy successor to him has been chosen in the person of W. Oliver, B. A. (Tor.) who removes from Bowmanville. Mr. Oliver's career as a teacher has been long and successful. He had charge for some time of the Oakville grammar school, and gave it up for Welland high school. He next moved to Bowmanville, where he has been for some years past, and during that time he has worked the high school there up to a state of great efficiency. Mr. Oliver has served as examiner in chemistry in Toronto university.

For a school in a small centre of population the Weston high school, under the management of its energetic head master, W. Wallace, B. A., has made for itself during the past term a very creditable record. Out of nine candidates sent up to the intermediate eight were successful. To the recent junior matriculation examination in the university of Toronto it sent up three candidates, who won five second and two first class honors. One successful candidate for first year standing in the same institution, and one for the primary examination in the Law Society complete an excellent list.

Mr. Barton, assistant master in Weston high school, resumes this year his course in Toronto University, and his place has been taken by Mr. Wm. Smith, an undergraduate in mathematical honors in the same institution. Mr. Smith holds a first class provincial certificate, and was formerly assistant in Caledonia high school.

Brockville high school opens this month under the head mastership of Rev. Clare L. Worrell, B. A. He graduated at Trinity College, Toronto, in 1873, having held the first place in his year throughout his university course and standing first in the first class mathematical tripos at graduation. He was for some years a successful master at Bishop's college, Lennoxville Que. and began his high school career as mathematical master of the Cobourg collegiate institute. He was appointed head master of the high school, Gananoque in 1879, which position he has held until the present summer when the Brockville high school was offered to him. The acceptability of his services at Gananoque is attested by the fact that the Board of Education of that place passed, by a unanimous vote, a resolution asking him to reconsider his resignation and promising an increase of salary for the following year. Mr. Worrell, however, did not feel justified in relinquishing the opportunity for a wider field of labor which was presented at Brockville and so pressed his resignation. His pupils presented him with a very handsome silver card-receiver at the close of last term.

Mr. Worrell is not unknown in Brockville, having taken an active part for sometime in the Leeds county teachers' association in which he now holds the position of president.

Miss Jackson succeeds Mrs. Merrill as teacher in the lowest division of Uxbridge high school.

Thomas Scales, B. A., (Queen's) has been reappointed head master of Williamstown high school. His assistant is Mr. G. T. Lewis, undergraduate of Mount Allison college.

A. C. Crosby, B. A., head master of Smithville high school was presented by the pupils of his intermediate class with a very beautiful and costly arm chair. On the same occasion his assistant, Mr. G. J. Laird was made the recipient of a fine gold pen and holder.

Joseph Nason, B. A., has resigned his position as assistant in Vankleek Hill high school, and has accepted the second mastership of Orillia high school at a salary of $700. Mr. D. C. Little succeeds Mr. Nason, at a salary of $500.

Mr. C. A. Winter, first assistant in Waterloo central school has resigned. Previous to his leaving the profession his pupils presented him with a copy of the Canadian Portrait Gallery and an address speaking very highly of his ability and success. During his career as a teacher Mr. Winter won many friends by his kind, genial manner; and as secretary of the Waterloo teachers' association he earned the esteem and goodwill of the members.

Richmond Hill high school, under the head mastership of Wm. McBride, M. A. has been very successful lately. Four candidates sent up to the last matriculation examination passed, obtaining three second class honors. At the "Local examination for women" which was held in their own school, seven ladies wrote and all passed. The university record since last September is four first-class honors, three second-class, one $170 scholarship, five for matriculation and seven at local examination for women. Every one sent up succeeded. Well done, Richmond Hill, teachers and pupils!

Inspector J. J. Tilley, Bowmanville, was the chairman of the Examining Board at the recent intermediate examination, and before separating, the examiners who performed the laborious duties of examining and marking the papers of the 3,300 candidates who wrote, unanimously passed and tendered to Mr. Tilley the following resolution of thanks:—"*Resolved*—that the thanks of the Board of Sub-examiners be tendered to Mr. Tilley for the uniform courtesy and ability with which he has directed the progress of the examination, and has, thereby, not only much facilitated the execution of a work tedious and laborious in its nature, but has also shortened the time which would otherwise have been consumed in its accomplishment."

We are pleased to note the well-deserved appointment of Mr. Isaac Wood to the head mastership of Kingston model school. His promotion from the principalship of one of the city schools is a record of success and shows the esteem in which he is held by the local educational authorities. His predecessor, Mr. D. McArdle resigned the position, as he is, we understand, about to go to Manitoba.

Mr. Colin Scott has been transferred from the principalship of the Louise public school to be assistant in the model school, and is succeeded by Miss Holmes of Toronto as lady-principal.

Inspector Kidd of Kingston has been highly complimented by his school board on his efficient services and has received a tangible token of their appreciation in the shape of an increase of salary.

It is said that at the end of this year Kingston collegiate institute will take rank as a high school.

Miss Palmer has resigned her position in the Richmond Hill high school and her successor is D. B. Kerr, B. A. (Tor.) First Proficiency Scholarship man at matriculation and a first-class honor man in modern languages. The salary of Mr. W. McBride, M. A., the head master, has been increased from $1000 to $1100.

The inspector's annual report for the county of Lanark is before us, and we are pleased to observe that since the appointment of F. L. Michell, B. A. as inspector, a great improvement in attendance of pupils, discipline, accommodation and other important matters, has taken place. In his efforts to secure a better state of affairs it is gratifying to see that the school trustees are actively seconding him. Under such able management Lanark will shortly "come to the front."

H. L. Dunn, B. A., has been appointed to the classical mastership of Lindsay high school.

Mr Smith has accepted the position of principal of Oshawa high school, vacated by the appointment of W. W. Tamblyn, M. A. to Bowmanville high school. Mr. Smith has been classical master in Guelph high school.

J. M. Clark B. A. has been appointed mathematical master of St. Mary's collegiate institute. He is spoken of as an accomplished scholar and will prove a valuable aid in a school which is already well supplied with teachers who are earning a first-class reputation for the establishment.

NOVA SCOTIA.

The third annual meeting of the teachers' association for inspectorial district No. 7 (Cape Breton and Richmond counties), was held in the new academy, Sydney, on the 22nd and 23rd of June. The Superintendent of Education, Dr. Allison, and the inspector of schools, Mr. M. J. T. Macneil were present and contributed greatly to the interest and success of the meeting. The latter gentlemen presided *ex officio* over the association, Mr. C. P. Moore was chosen Vice-President and B. McKittrick, B. A., Secretary-Treasurer. The following constitute the executive committee: Miss A. H. Hamilton, Miss A. C. Jost, and Messrs. C. F. Cameron, J. L. Kelly, D. R. McLellan, with the executive officers. Seventy-eight teachers were enrolled as members. The formal exercises opened with a paper on "Reading" by Mr. C. F. Cameron. The writer advocated strongly the simple and natural method of beginning with the easy and proceeding to the more difficult. On this ground both the alphabetic and phonic methods of teaching the elements of reading were condemned. The paper elicited much hearty and profitable discussion. Mr. C. P. Moore followed with a paper on "Drawing," in which he advocated the introduction of industrial drawing into our schools both on educational and utilitarian grounds. The Superintendent of Education expressed earnest concurrence in the spirit and scope of Mr. Cameron's essay, and while proud of our school system as a whole feared that in this respect we were in danger of being surpassed by the schools of other countries. This paper also was earnestly discussed. At the opening of the afternoon session Mr. D. R. McLellan presented a paper on the "Unitary method" in arithmetic, coupled with instructive illustrative exercises. Dr. Allison pointed out that the utility of the unitary method became apparent when we reflected that in solving a problem the great point was to get in a central position from which we could view it in all its bearings. Other speakers followed with interesting remarks and criticisms. Some unavoidable cause having broken up the rest of the regular programme for the afternoon, several educational topics of importance were discussed in an informal manner. The evening session was held in the Temperance Hall. Inspector Macneil efficiently presided, and after an introductory song from an excellent choir, introduced the Superintendent of Education, whose address was an exposition and defence of our system of schools with some suggestions for its improvement. He appreciated the sympathy expressed rather than felt for the "three R's," but did not regard those useful branches as exposed to any danger from studies equally useful. Each age has its characteristics and its necessities. It is no disrespect to the memory of great and good men who have passed away to say that what did for them will not do for us. Nova Scotia in view of the needs of the present hour must educate her children as well as rival communities are educating theirs, or fall behind in the race of progress. He paid a warm compliment to the people of Sydney for the noble edifice which they had consecrated to the interests of education.—Rev. Messrs. Smith (Episcopalian) and Farquharson (Presbyterian) moved and seconded a heartily adopted vote of thanks to the Superintendent. The next day's exercises were ushered in with a paper on grammar by Mr. C. F. Hall The essayist ably discussed some of the deeper mysteries of the science of language. A lively discussion sprang up, participated in by Dr. Allison, Mr. McKittrick, Mr. Blackett and others. "Cramming" formed the subject of the next essay, which was prepared and read by Angus Chisholm, B. A. In a striking manner the evils of the undigested cramming of verbal formulæ were pointed out and the nature of valid educational processes unfolded. Dr. Allison agreed with all the speaker had said but thought there was some danger of going to the other extreme and undervaluing, and therefore *neglecting* the memory, one of the most marvellous of our intellectual faculties. Other speakers followed all conceding great excellence to Mr. Chisholm's paper. In the afternoon Mr. B. McKittrick, B. A. discussed the subject of geometry and the normal method of teaching it. He advocated teaching the fundamental truth in preliminary oral lessons with copious concrete illustrations. This was followed by the concluding exercise of the association, an essay on "School hygiene" by Mr. C. W. Blackett. This subject, which was very ably treated, was enforced in some earnest and eloquent remarks by Inspector Macneil in which he gave the teachers present excellent practical advice. A noteworthy feature of the association was the large attendance, as spectators, of ladies and gentlemen interested in education. Many of the foremost professional men of Sydney honoured the teachers with their presence and kindly words of cheer. The closing exercises of the Provincial normal school were held on the 11th of July. They fully sustained the reputation of the institution. The order of proceedings, as far as students' exercises were concerned, was as follows:—(1) Lessons in Decimals, by Mr. Bowles of Cornwallis; (2). Lessons on the Lever, by Miss Crowell of Barrington; (3). Lessons in Drawing, (from dictation) by Miss Palfrey of Lawrencetown; (4). Lessons in Zoology, by Mr. McDonald of Margaree; (5). Lessons in Geography (Egypt) by Miss Freeman of Liverpool. These lessons, while unequal in merit all bespoke faithful work on the part of the normal school faculty. The Principal J. B. Calkin, M. A. reported the total number of enrolled pupil teachers for the year as 121, with an average attendance of about 100. The number reported as receiving diplomas, or certificates of professional classification, was 81, classified as follows: 6 grade Superior; 47 grade Good; 28 grade Fair. The names and averages on professional work of the winners of Grade Superior are as follows:—Miss Freeman, Liverpool 80; Miss Jackson, Cornwallis 78; Miss Crowell, Barrington 78; Miss Robertson, Barrington 76; Mr. J. D. McLeod, St. Anns C. B. Mr. W. H. Magee, Cornwallis 75. The following head the list in the record of general scholarship with an average of 75 and upwards; Miss Crowell 79·4; Mr. W. H. Magee 79·3; Miss Jackson 79·2; Miss Freeman 77·9; Miss Robertson 77·2; Miss Miller, Stellarton 76·3; Miss Hamilton. Steniack 75·6; Mr. D. McD. Clarke, West River, 75·2; Miss Clarke, West River, 75: Mr. J. D. McLeod, 75. The Governor-General's medals were won as follows: Silver medal Miss Crowell; Bronze medal, Miss Jackson. The medals not having arrived, certificates of award were presented to the above young ladies by his honor the Lieutenant-Governor, whose presence graced the occasion, as it has done for many years, the closing exercises of the institution. The subject of the essays written in competition for the medals was "Pestalozzianism and modern methods of education." The adjudicating committee consisted of Rev. Dr. Sawyer, President of Acadia college; Mr. R. Murray, editor of the *Presbyterian Witness*, and the Superintendent of Education. The portions read of the prize essays conveyed a very favourable impression of their literary merit. At the conclusion of the formal exercises, brief addresses in response to invitations from the Principal were delivered by Lieutenant-Governor Archibald and Dr. Allison, Superintendent of Education. The reporter of one of the Halifax papers summarizes their remarks as follows; "The Governor drew a graphic picture of the progress of education in the province, and paid a warm tribute to the excellent moral tone which has characterized the normal school from its first establishment. Incidentally, his Honor expressed himself as strongly in form of university consolidation. Dr. Allison briefly referred to a still desirable elevation of public sentiment in respect to the appreciation and remuneration of teachers' services. Both speakers gave expression to the universal feeling of the large audience that the exercises of the students were exceedingly meritorious." In the afternoon a number of graduates of the normal school met and organized a society of Alumni, with officers as follows: President, E. M. Chesley, M. A. Yarmouth; Vice-President, H. Waddel, Halifax, Secy-Treasurer, W. Mortimer McVicar, Truro. The society proposes to benefit their *Alma Mater* and promote good fellowship by an annual celebration and dinner.

It is understood that the Church of England synod of the diocese of New Brunswick has recognized the theological department of King's college, Windsor, as the Divinity School of that Diocese. An application for similar recognition has also been made to the Diocese of Newfoundland.

Four candidates wrote at the recent examination for the Gilchrist scholarship at Halifax.

The annual Encenial exercises of King's college, Windsor, were held on the 29th of June. The sermon required by statute was preached in the Parish Church by the very Rev. Canon Dart, President of the university. The learned preacher eloquently expounded the relations, harmonies, and differentiating conditions of science and religion. At the Encenia proper the President delivered an interesting oration on the cultivation of a literary taste. The exciting subject of a year ago, collegiate consolidation, seemed entirely lost sight of. His lordship Bishop Binney, and Rev. Mr. Brigstocke, Rector of Trinity Church, St. John N.B. also delivered addresses. A number of degrees both *in cursu* and *pro honoris causa* were conferred.

On a recent visit to Cape Breton, the Superintendent of Education pronounced the new academy at Sydney as, next to the Halifax high school and the Picton academy, the finest academical structure in the province.

The third annual session of the Provincial Educational Association was held at Truro on the 12th and 13th of July. It was attended by nearly 300 members either teachers or others directly connected with the work of education.

An essay on "Technical education" by Dr. J. Gordon McGregor of Dalhousie college, has been published and extensively circulated. It epitomizes with great clearness and precision the history of educational development in this important direction. It shows what Nova Scotia is not doing.

The third annual session of the Provincial Educational Association was held at Truro on the 12th and 13th of July. At 9 a. m. on Wednesday the 12th, the Superintendent of Education, as *ex-officio* President of the Association, called the members to order in the spacious Assembly Hall of the Provincial normal school. In his opening remarks he congratulated the Association on the success of its past meetings, on its growing influence for good, and on the auspicious circumstances under which it now convened. He wished members to claim and exercise complete freedom of speech on discussing all legitimate educational questions. The report of the executive committee, embracing a duly audited account of the year's receipts and expenditures, and a carefully prepared programme of exercises for the present session was prepared by the secretary of the committee, Mr. A. McKay. On motion the report was unanimously received and adopted.—Mr. A. McKay (Halifax High School) and Mr. B. McKittrick, B. A. were unanimously re-elected to the positions of Secretary and Assistant Secretary. Prof. Walter Smith, State Director of Art Education, Massachusetts, was at this point introduced to the Association, and proceeded, in accordance with the programme, to deliver an address upon the subject of drawing in schools. The specific title of Mr. Smith's lecture was "Definition of Industrial Drawing: How Industrial Drawing should be taught, and who shall teach it." In developing his subject, he sought to dissipate prevailing misconceptions regarding it. He clearly defined and illustrated the distinction between strictly artistic culture and the instruction possible in the ordinary schools of a country. Industrial drawing, as he aimed to make it general and popular, was something simple—a power to give clearness to the vision and precision to the touch. It was not a recondite accomplishment, impossible to the many. It was a faculty which all human beings of reasonable endowments can attain unto. The value of sense education was unfolded and eloquently insisted on. The closing part of the lecture dealt with the practical side of the subject. Mr. Smith exhibited a large number of illustrations representing the elementary steps in industrial drawing and showing what could be accomplished by regular teachers in connection with their ordinary school-room work. The futility of employing a class of specialists to do what regular teachers can be trained to do much more effectively was earnestly dwelt upon by the speaker. The first part of the afternoon session of Wednesday was devoted to practical exercises in teaching. Lessons were given in botany, mineralogy, and elocution by two teachers of the Model Schools connected with the provincial normal school, Misses Hamilton and Church. These exercises received careful attention from the large and deeply interested audience. After a brief recess, the report of the committee appointed last year by the Association to prepare a course of study for high schools and high school departments, was submitted to the chairman, Principal Calkin of the provincial normal school. In presenting the report, Mr. Calkin briefly indicated the difficulties encountered by the committee and the methods by which it had been sought to fairly compromise between conflicting views. Printed copies of the high school course were laid upon the table, and afterwards distributed among the members, as a part of the report of the committee. Mr. E. J. Lay (Amherst academy) in opening the discussion on the proposed course, expressed himself in terms of general approval. He vindicated the place assigned to classical studies. Mr. McKay (Secretary) vigorously impeached the arrangement of subjects in the course, so far as the natural sciences were concerned. The natural order was not observed, neither did the course articulate harmoniously with the preceding common school course. Mr. McKay (Pictou academy) spoke earnestly in defence of the course, particularly in view of the criticisms of the last speaker. He urged that in the common schools sufficient knowledge of the elementary parts and principles of science was obtained to enable pupils to take up the assigned subjects with profit. On motion, the discussion was adjourned. The evening session (Wednesday) was held in the hall of the Y. M. C. A. to enable the people of Truro to share with the association the pleasure of listening to Walter Smith's lecture on "Art Education in its relation to Industrial Development and Household Taste." The chair was occupied by the Superintendent of Education. The audience was one of the largest ever assembled in Truro. Among others present was His Honor the Lieutenant-Governor. In the first part of his lecture, Mr. Smith gave an interesting history of the development of art education, particularly of industrial drawing as a branch of common school instruction, and traced the effects of this development on the progress and wealth of nations; in the latter, he dwelt with great humor and instructiveness on aspects of art education related to domestic economy and enjoyment. The lecture was illustrated by a superb collection of drawings from the normal art school, Boston. The proceedings of Thursday morning's session were opened with the reading of a paper on "Internal School Management" by C. W. Roscoe, M. A., inspector of schools, in which much sound thought was displayed and many valuable suggestions made as to the best methods of securing the healthful growth and development of mind and body. The speaker showed that unity of aim and effort on the part of all interested in carrying forward the work of education is necessary. The powers, prerogatives and duties of teachers were clearly defined. The legitimate means of securing proper attention to study in school were represented to be the instinctive love of knowledge, or curiosity, force of example, the desire of achievement, and, under proper regulation, the principle of emulation. The above paper, which was most attentively received, was followed by an object lesson in insectology by Miss Fletcher of the model school. This lesson served as an appropriate introduction to the next exercise, which was the reading of a paper by A. H. McKay, B. Sc., entitled "Notes on the Natural History of the prescribed common school course." It is impossible in this brief extract to do justice to this elaborate and excellent essay. At the close of the session the Superintendent of Education said he hoped that Mr. McKay might be induced to prepare a brief manual for the guidance of teachers on the natural history subjects of the common school course. This subject was warmly received by the association. The first part of the afternoon session was occupied by Prof. Smith, who delivered his closing address to the association on the subject of "Method" in teaching drawing. His remarks were exclusively directed to the teachers present, and were to the point. A hearty vote of thanks was then presented to the professor, which the president supplemented with a few words expressing appreciation of Mr. Smith's services. On motion of Inspector Condon, seconded by Inspector Mackenzie, the association unanimously resolved to ask the Council of Public Instruction to take steps whereby the teaching of industrial drawing shall become general in the schools of Nova Scotia. At this point a ballot was taken from members of the executive committee, with the following result: A. H. McKay (Pictou), Dr. Hall. Prof. Eaton, A. McKay (secretary), Inspector Roscoe, Inspector Condon, E. J. Lay. The whole of the closing session (Thursday evening), with the exception of a few minutes devoted to necessary routine, was occupied with the resumed discussion on the course of study for high schools. Prof. Eaton submitted a modification of the committee's course. He proposed to make Latin a compulsory subject, and would prefer to discard Greek altogether. Mr. Denton (Kentville), thought that no simple course would meet our educational circumstances. We have different grades of high schools or academies. Some were capable of more advanced and more varied work than others. This fact should be recognized in formulating a curriculum. The president (Dr. Allison), thought that a well devised course would serve as a high school test. If institutions called themselves high schools, and yet did not, and could not do high school work, it was time their pretensions were abated. He deprecated the suggestion of making Latin a compulsory subject, not because he did not appreciate Latin himself, but in view of a wide-spread public opinion which it was vain to combat. Mr. McKay (Pictou), in answer to Mr. Denton said the committee had done the best they could, but had never contemplated making a course which would enable one man to do the work of two or three. Mr. Waddell (Halifax high school), thought that the two courses, common school and high school, needed re-adjustment so far as the study of history was concerned. There was too wide a gap between the "Brief History of England" and Sumter's "Outlines of the World's History." Pupils on this plan would have but an inadequate knowledge of their own country. Mr. Cameron (Yarmouth), expressed the opinion that the scientific provisions of the course had been criticized with undue severity. He saw no reason why astronomy should not have a place in such a curriculum. The stars above our

heads were as well worthy of study as the worms beneath our feet. After some further discussion, the course was submitted for further revision to a committee to be named by the president. Thus closed a most successful session of the association. 290 enrolled members were in attendance. Of these, upwards of 250 were teachers in active service.

Rev. E. M. Keirstead, M. A., has been appointed professor of metaphysics and English literature in Acadian College. Prof. Kierstead assumes the chair recently occupied by Dr. J. G. Schurman. He is a graduate of the university of New Brunswick and of Nenton Theological seminary. Albert Coldwell, M. A., has been appointed instructor in natural sciences in the same institution, Acadian College.

QUEBEC.

QUEBEC PROVINCIAL ASSOCIATION OF PROTESTANT TEACHERS.

This body held its nineteenth annual meeting in the school-room attached to St. Peter's church, Sherbrooke, July 4th, 5th, and 6th. The proceedings were opened by the president, R. W. Henneker Esq., D. C. L., chancellor of Lennoxville, on the evening of the 4th. The attendance of teachers at the first session was small but each succeeding session showed a considerable augmentation. A large number of the influential citizens and clergy, were present at each session and evinced a warm interest in the several subjects. Among the occupants of the platform at different sessions were the Hon. G. Ouimet, superintendent of public instruction, the Lord Bishop of Quebec, Principal Dawson, of McGill college, E. J. Hemming Esq., Drummondville, the Revs. Arch. Duff, C. P. Reid, S. Brock, and Inspector Hubbard, Sherbrooke.

The secretary, Rev. E. J. Rexford, M. A., drew attention to the programme, read several letters from friends in Canada and the United States regretting their inability to attend, and gave a resume of the work performed by the executive committee. John Harper, B. A. Rector of Quebec high school read an admirable paper on "Cause and effect in school-work," which was well discussed. Miss Henderson of the girl's high school read a well written paper on "Scott's Lady of the Lake, with an elementary class," which also led to an interesting discussion as to the age when such a subject might be presented. Miss Francis of the McGill normal school, followed with a paper on "How to teach Analysis." Mr. J. L. Robertson of the CANADA SCHOOL JOURNAL, gave an address on "Primary Reading" which was much appreciated. Miss Sloan of the McGill model school then read a paper on "How to teach object lessons," and illustrated her method by giving a lesson on wheat to a class of boys whom she kept thoroughly interested. Miss Reid succeeded her with a valuable paper on "How to keep the little ones employed." A committee on resolutions was appointed consisting of the following gentlemen; Dr. Kelley, Montreal; Messrs. R. M. Campbell, Three Rivers; J. Harper, Quebec; H. Hubbard and J. H. Forde, Sherbrooke; J. Masten, Coaticook; Curtis, St. John's; and Graham, Huntingdon. Mr. R. W. Henneker, D. C. L., then gave the presidential address on "Competitive and qualifying examinations" which, judging from the applause it frequently received, gave general satisfaction. Miss McGann, of the Mackay institute, Montreal, read a most interesting paper on "Visible speech" and afterwards illustrated her system of instruction by introducing a deaf boy, (son of a Sherbrooke citizen,) who pronounced audibly some extremely difficult words, Latin quotations and colloquial phrases, written in a peculiar caligraphy on the blackboard. She also by lip movement held a conversation with him. Everyone appeared intensely pleased with the great and peculiar success of the system she exemplified. The Hon. G. Ouimet, superintendent of public instruction, whose appearance was greeted with considerable applause, next addressed the meeting, first in English, afterwards in French. His eloquence seemed to inspire the audience, for the enthusiasm was loud and frequent. He dwelt particularly on the progress of education in the Province, the importance of the teacher's work and the improved prospects of the teacher. The time and place of next meeting caused an animated discussion and it was eventually decided to meet at Lachute, October, 1883. The election of officers resulted as follows:—President, Dr. Christie; vice-presidents, Alderman J. C. Wilson, Rev. E. J. Rexford, and Mr. J. Masten of Coaticook; secretary, Dr. Kelley; treasurer, Mr. C. A. Humphrey; executive committee, Dr. Robins, Rev. Principal Holmes, inspectors McLaughlin and McGregor, Misses Henderson, Sloan, Francis and Hill, Messrs. Rowell, Kneeland, Harper, Campbell, Halliday, Forde, and Curtis. A very important discussion on "How to make the *Educational Record* useful to teachers" was introduced by R. W. Boodle Esq. B. A. editor, and some practical steps were taken to promote the success of this able, useful and instructive periodical in the Province. Mr. F. C. Emberson gave a brief address on "Chronologico-symbolic aids in teaching history," after which Mr. R. W. Boodle read an excellent paper on "The necessity of reform in English grammar," which elicited an interesting discussion. Mr. R. M. Campbell adverted to the Pension Act and was replied to by the Hon. G. Ouimet. The committee on resolutions then presented their report, at the conclusion of which principal Dawson gave an admirable address bearing on the position of Protestant education, the duties of teachers, the principles of instruction and the evil of cramming. He was followed by an address from Mr. E. J. Hemming on the importance of the rudiments of a good English education being well attended to in public schools. After a vote of thanks to the Hon. the superintendent of public instruction for his presence, kindly sympathy, and substantial assistance, the convention was closed by benediction pronounced by the Lord Bishop of Quebec.

Rev. E. J. Rexford, M.A., late head master of Montreal high school has been appointed secretary of the department of Public Instruction for the Province of Quebec. This appointment has given great satisfaction to the teachers of the Province, by whom Mr. Rexford is universally respected; and a cordial resolution expressive of their pleasure was passed at the late convention of the Provincial Association of Protestant Teachers, of which he was Secretary. Dr. Kelley succeeds Mr. Rexford in the headmastership

MANITOBA.

WINNIPEG TEACHERS' ASSOCIATION.

At the regular meeting of the City Teachers' Association, held in Mr. McIntyre's class room, Central School, Mr. N. Hewitt, introduced the subject of writing, which was followed by an interesting discussion in which Messrs Somerset, McIntyre, Hunt, and Miss Shore took part. This was followed by a paper on music, read by Mr. Hunt, explaining the Tonic Sol-fa System. After a short discussion it was decided to introduce the system in the schools after the mid-summer vacation.

The following resolution, moved by Mr. E. A. Blakely and seconded by Mr. E. S. Garratt, were then carried unanimously:—

"That we the members of the Winnipeg Teachers' Association desire to take this opportunity to record our approval of the course adopted by the Inspector, Mr. T. B. Somerset, in endeavoring to work up the city schools to a more thorough state of efficiency, and to express our willingness to heartily co-operate with him in all his earnest efforts in that direction.

"We would further wish to give expression to the very high esteem in which he is held by us, not only as an efficient public officer, but also as a Christian gentleman. He has been among us only a short time, but during that time he has established for himself a reputation for thoroughness which augurs well for the future prosperity of our schools.

"We consider our school authorities are to be congratulated on having secured the services of such an able and practical gentleman to assist in moulding the destiny of the educational institutions of this young province."

ONTARIO TEACHERS' ASSOCIATION.

The annual meeting of the Provincial teachers' association of Ontario took place in the Public Hall of the Education Department on the 8th, 9th, and 10th of August. The President, Archibald McMurchy, M. A., presided and delivered the usual address, in the course of which he gave a valuable and interesting review of the educational work in the different English speaking countries. He strongly advocated a form of teacher's agreement, in which no definite time would be specified, the understanding being that the engagement was to last as long as the teacher continued to give satisfaction. He discussed the danger of mixing up politics with education, and favored a return in Ontario to the administration of the Department by an officer who would not be mixed up in party political struggles. He discussed also the use of the Bible in schools and thought the law should be amended so as to require moral and religious instruction to be given in all schools unless when a vote of the people in any locality declared otherwise.

During the afternoon of the first day's meeting Mr. F. S. Spence, of Toronto, gave an address on "School hours and vacations,"

The address was highly practical, and gave rise to an interesting discussion, which indicated that Mr. Spence spoke the views of his fellow-teachers generally. He cautioned teachers against endeavoring by means of physical exercises to recuperate exhausted mental energy. He would like to have the vacation period fixed at a time when there was no farm-work to be done, for children should have a rest as well as the teachers. With reference to "cramming," he thought the aim should be to shorten the hours, not lessen the intensity of the application to work. Short lessons and long intervals should be the rule in all primary classes. Two hours a day was enough time for pupils in the first book; this increased by half an hour a day for each division would bring the school time to what it is now for the junior fifth-class pupils of say 13 years of age. Outside supervision was one of the most important duties of the teacher. He looked upon schools and teachers as necessary evils, since they were used for doing work which properly devolved upon the parent. He objected to the imposition of work by way of punishment, and advocated the substitution of gymnastic drill for the short recesses.

On the afternoon of the second day a committee, consisting of Messrs. Fotheringham, Johnston (Belleville), Millar, Alexander, and McHenry, was appointed to frame a suitable resolution of condolence on the death of the late Dr. Ryerson, and to forward it to the family of the deceased.

G. W. Ross, M. P., gave an admirable address on the subject, "How to make teachers' associations more useful." He advocated the holding of township institutes, and of longer sessions of the wider associations which should be held once a year. The programme of these meetings should be comprehensive and practical, and subjects outside of the teacher's immediate work should occasionally be selected. Subjects should be allotted only to those who consented to take them up, and then the engagement should be strictly kept. He would introduce the United States institute plan of having the subject introduced amidst a running fire of questions from members by means of which all would be drawn into the discussion. He would like to have the attendance of the teachers made compulsory, and concluded by expressing his high appreciation of the association as a means of self-improvement amongst the teachers.

An address was delivered during the evening by J. A. McCabe, LL. D. principal of the Ottawa normal school, on "The Schoolmaster abroad." After referring to some general principles connected with education, he contrasted the use made of text-books in former days with the use made of them now. A text-book he defined to be an artificial reservoir—often an empty and muddy one—of facts. He advocated the phonetic method in teaching reading. The best teachers should be placed in charge of the lower divisions in a school, as the great work of the teacher was to create a thirst for knowledge, and train the pupils to habits of observation.

The report of the committee appointed to consider the suggestions in the President's address was then submitted and adopted. The most important part is as follows:—"In view of the very great evils which seem to have resulted in the United States and other countries from the introduction of politics into educational matters, your committee trusts that all true friends of our school system will unite in discountenancing every influence tending in that direction. The number of schools opening with religious exercises is happily on the increase, and your Committee is of the opinion that it is desirable that a suitable selection of Scripture lessons should be incorporated in our Readers; and that the sentiments of the President's address are strongly endorsed; that any one who cannot reverently, humbly, and lovingly read the Scriptures is not fit for a teacher."

The afternoon of the third day was taken up with an address of a general character from Dr. Goldwin Smith, and a paper by Professor M. McVicar on "Inductive and deductive methods in education." Dr. Smith after a brief reference to educational matters in England, and to the university and public library questions in Canada, expressed the opinion that perfect liberty of action to the people of each locality was the best solution of the difficulty about the introduction of the Bible into the schools. He did not favor the re-establishment of the Council of Public Instruction as an administrative body, but thought some such body would serve a useful purpose in other ways. Professor McVicar's paper was a thoughtful and suggestive one, but it was at the same time unsuitable for being intelligently summarised.

In the evening Mr. W. H. Howland gave an address on "Temperance in the public schools." He stated that in Toronto an incredible number of youths were learning drinking habits. In England they had school-books on temperance which taught that alcohol was a poison and a producer of disease instead of an article of food and a producer of strength. This closed the proceedings of the general convention.

PUBLIC SCHOOL SECTION.

In this section the chief topics of discussion were (1) Public examinations," which was introduced by Mr. Richard Lewis, of Toronto; (2) the granting of higher certificates as the result of successful teaching, introduced by Mr. S. McAllister of Toronto; (3) the new public school programme, which came up in connection with the report of a committee appointed to consider it; and (4) the demand made on teachers for information by the Bureau of Industries. The opinion of the section was unfavorable to the conversion of public examinations into mere exhibitions and a motion in that sense was carried. After a good deal of discussion a motion was carried in favor of raising a teacher's certificate one grade by examination after five years of successful teaching and another grade after three years more. A good deal of doubt was expressed as to the expediency of allowing so much control over subjects of study to remain with parents and trustees without an appeal to the inspector and this view was finally adopted by resolution. The work required by the circulars of the Bureau of Industries was regarded in the light of a hardship in view of the already small salaries and hard work of the teacher.

INSPECTORS' SECTION.

In this section after some discussion and the reception of a committee report on the subject a resolution was passed in favor of making promotion examinations general with a *caveat* against making success at these examinations the great aim of school-work. It was also resolved, after discussion, that it would be better to have reading, writing, arithmetic, spelling, grammar, composition, and geography made compulsory in the programme. The committee on teachers' associations reported that in order to a full and regular attendance at the associations they recommend that the programme be made eminently practical and interesting. That inspectors should use every suitable opportunity in meeting with trustees or teachers to impress the usefulness of the meetings on those who attend them, and urge on the teachers the duty to themselves and their profession in respect of their contributing to the work at the meetings. That some means should be adopted to bring the absence of the teachers from the regular meetings of the association to the knowledge of their trustees. That periodicals or books should be supplied to the members in whole or in part from the funds of the association. That in counties where a central point is not easily reached, a general county convention should be held once a year, and a local association in each township in the other half year; that in regard to the programme the non-professional part should be subordinated to the professional. It is desirable that classes of pupils from the schools be brought to the meeting for the purpose of practical illustrations of methods of teaching. Where it is impracticable to bring pupils to the place of the meeting it is a good alternative to form classes of the teachers in attendance. The association should provide means of assisting members in their individual difficulties by opening a question drawer. The interest seems to be best maintained in this feature of the programme, where questions are admitted up to the end of the first day of the convention, and answered at a certain time on the second day.

The following resolution was adopted:—That in the opinion of this Section it is advisable that the professional examination of third-class teachers be uniform throughout the Province, and that the papers be prepared by a committee of public school inspectors.

HIGH SCHOOL SECTION.

A resolution was carried in this section looking to the holding of the intermediate and University Examinations at different dates so as to enable pupils to try to pass both. A motion by J. Millar M. A. calling the attention of Toronto University Senate to the desirability of admitting male candidates to the local examinations was left over till next year. Steps were taken to ask the University Senate to issue more specific instructions as to the junior and senior matriculation examinations, with regard to the manner in which the papers are to be set and the values assigned. A paper was read by G. H. Robinson M. A., of Whitby on the intermediate examination. He traced its history from its institution in 1875 and its influence on high school education to the present time. He next discussed the effects of the change made by the new regulations which were summed up as follows:—

1. It will probably lessen the pressure of work both upon teachers and pupils.

2. It will probably enable masters to give more time to purely English subjects.

3. It will moderate professional jealousies and abate, if not entirely remove, those unhappy evils that have arisen out of the intermediate.

4. It will permit in some degree a measure of play to the individuality of the teacher and pupil.

The defects of the scheme he thought were :—

1. It will destroy the uniformity of the system.

2. It will discourage the study of classics, mathematics, modern languages, and probably also history and geography.

3. By allowing many options to all pupils and the university and professional examinations requiring their full quota of subjects, it will prevent effective classification, and in the majority of schools will leave many of the pupils unemployed.

4. It will to a very large extent leave secondary education to the whims and fancies of ever-changing school boards, and the likes and dislikes of frequently changing masters.

5. It will by allowing so many options practically place secondary education in the hands of parents often not competent to decide upon such important matters, which in many instances will mean in the hands of the pupil himself.

6. It will prevent the awakening and recognition of exceptional talent in many subjects.

7. It will have a serious effect upon the volume and value of the University supply.

8. And lastly, but by no means wholly, it will unsettle the public mind as to the status of secondary education. He concluded by suggesting a slight modification of the old intermediate as preferable to that proposed, or a modification of the scheme developed by the Senate of Toronto University for the guidance of Upper Canada College. He was not in favour of the intermediate as a basis of classification in the high school, but if it was to be obligatory he would like to see it as little hurtful as possible. The reading of the paper was frequently interrupted by applause, and Mr. Robinson was asked to have it published.

Announcements.

EDUCATIONAL CHANGES.

The changes made in the educational system of this Province by the following regulations are neither few nor unimportant. They affect the programmes of high and public schools, the status and qualifications of teachers, the powers and duties of inspectors, the mode of distributing the high school grant, the list of text books, and the machinery for imparting to teachers a professional training. That modifications so extensive were not made without a good deal of investigation and deliberation goes without saying, and it is not easy to see in each case whether change and improvement are synonymous. That some of the changes are in the right direction is apparent at a glance, as for instance the placing of the Provincial normal and model schools under one official head. Heretofore there has not been uniformity in the methods pursued in these institutions ; hereafter this desideratum will be secured under the able supervision of Dr. McLellan, who has been appointed to the newly created office of "Director" of the normal and model schools Apparently the mode of distributing the high school grant, while it tends to increase the salaries of the masters, will leave a portion of the sum unexpended unless it is reduced by the Legislature. How would it do to utilize this unexpended portion to encourage the development of special lines of high school work in the more enterprising institutions? Payment by results having been abandoned as the general principle of distribution, and there being a want of provision for special courses in high schools generally, much good might be done in this way at a trifling cost to the country :—

HIGH SCHOOL PROGRAMME.

Lower School.

I. The subjects of study which are obligatory upon all High School Boards are as follows :—

1. English Grammar.
2. English Literature.
3. Composition.
4. Dictation.
5. History and Geography.
6. Arithmetic and Book-keeping.
7. Drawing.
8. Drill and Calisthenics.

II. The subjects of study which are optional with High School Boards are as follows ;—

1. Algebra and Euclid.
2. Natural Philosophy, Chemistry, and Botany.
3. Latin and Greek.
4. French and German.
5. Music.
6. Physiology and Hygiene.
7. Principles of Agriculture.
8. Household arts—as Sewing, Cooking, and Housekeeping.

III. While all High School Boards are required to afford secondary instruction in classes in the obligatory subjects above prescribed, each Board may arrange, according to the particular circumstances of its school, the order in which such subjects are taken up, the amount of work and time to be given, and the number of classes.

IV. High School Boards are not required to provide means of instruction in all of the optional subjects of study above authorized, but only in such as in the judgment of each Board the occasion or circumstances of their school render expedient.

Intermediate Examination.

V. The true object of this examination being to test the fitness of each pupil to proceed from the Lower to the Upper School, it shall be regulated so that any pupil of moderate capacity may, after the requisite period of study, pass in the most essential of secondary branches in the Lower School. The obligatory subjects of such examination are therefore limited to the following :—

1. English Grammar.
2. English Literature.
3. Composition.
4. Dictation.
5. Arithmetic.
6. Drawing, and
7. To one of the following subjects or groups of subjects at the option of each pupil, viz :—
   (*a*) Algebra and Euclid.
   (*b*) History and Geography.
   (*c*) Any two of the following three :—
   Natural Philosophy, Chemistry, Botany.
   (*d*) Latin.
   (*e*) Any two of the following three :—
   French, German, Music.

VI. The Education Department will prescribe by Regulations the principles to govern in the preparation of questions, the reading and values of answers, the conditions of passing, and the time and mode of conducting the examinations.

Upper School.

VII. The subjects of study in the Upper School shall be those prescribed for the Non-Professional Examination for First-Class Public School Teachers' Certificates, and for Junior and Senior Matriculation in the Provincial University, in the case of pupils preparing for any such examination. In the case of other pupils, any parent or guardian, after consultation with the Head Master, and with his approval, is at liberty to select for his child or ward one or more of the following subjects, as may best suit the purposes of such pupil, viz. :—

1. English Language aud Literature.
2. History.
3. Arithmetic and Algebra.
4. Any of the following :

French,	Geography,
German,	Natural Philosophy,
Latin,	Chemistry,
Greek,	Botany,

Geology and Mineralogy.

VIII. Head Masters are at liberty to continue in the Upper School any subject of the Lower School which they may think fit.

IX. High School Boards are not bound to provide instruction in all the authorized subjects of study in the Upper School, but are entrusted with full discretion to afford instruction in such subjects only as they may consider necessary in the particular circumstances of their school.

X. The foregoing shall take effect at and from the end of the summer vacation.

PUBLIC SCHOOL PROGRAMME.—PART I.

SUBJECT.	1st CLASS.	2nd CLASS.	3rd CLASS.	4th CLASS.
Reading—	Tablet Lessons and First Reader.	Second Reader.	Third Reader.	Fourth Reader.
Spelling—	Spelling from reading lessons.	Spelling from reading lessons.	Spelling, with elementary verbal distinctions.	Spelling. Verbal distinctions. Simple derivations.
Writing—	Elementary writing.	Writing on slates and paper.	Copy writing. Business forms.	Copy and miscellaneous writing.
Arithmetic—	Numeration and notation to 1,000, addition and subtraction.	Numeration and notation to 1,000,000, multiplication and division.	Greatest common measure and least common multiple. Vulgar fractions. Elementary decimals. Elementary reduction.	Vulgar and decimal fractions continued. Reduction & Compound Rules. Elementary percentage and interest.
Drawing—	Elementary figures, straight lines and their simpler combinations.	Elementary figures, straight lines and curves, and their simpler combinations.	Copying drawing. Drawing from objects.	Drawing from objects. Shading. Elementary perspective.
Geography—	Elementary ideas concerning the earth, and directions upon it.	Local geography and elementary definitions. Map of the world.	Definitions. Simple map. Geography N. America & Canada. Map drawing.	Geography of North and South America; Canada & Ontario. Map drawing.
Music—	Rote singing of simple songs.	Singing of simple songs.	Simple songs. Elementary ideas of written music.	Song singing. Sacred music. Musical notation.
Grammar and Composition—	Oral and written exercises in language.	Oral and written exercises in language.	Analysis of easy sentences. Simple descriptive writing.	Analysis. Rendering poetry into prose.
History—	.....	.....	.....	Leading features in English and Canadian history.
Object Lessons—	Counting — (beans, pebbles, etc.) Form, Size, Color, Weight. Common objects (parts and qualities).	Lessons on common objects (parts, qualities, and uses).	Common objects. (Source, manufacture, uses, &c.) Animals, birds, plants.	
Temperance and Hygiene—	.....	.....	Occasional lessons and familiar lectures.	Occasional lessons and familiar lectures.
Domestic Economy (for Girls)—	Threading needles. Hemming, *e.g.*, strips of calico, or a plain pocket handkerchief. Knitting—a plain strip.	Hemming, Seaming, or Sewing. Fixing a hem. } *e.g.*, child's pinafore. Knitting—a ribbed muffatee.	Hemming, Seaming, Felling, Stitching, Sewing on strings. } *e.g.*, a pillow case. Knitting — A child's plain sock.	Button-holing. Sewing on buttons, stroking, setting in gathers, marking. } *e.g.* A plain day or night shirt. Plain darning. Knitting—a ribbed stocking.
Drill (with Calisthenics for Girls)—	1. Teachers to take their own boys and form into squads according to strength. Then into squads with intervals, and put them through the following portions of Squad Drill:—Position of the soldier; standing at ease; dressing a squad with intervals; turnings; extension motions; saluting; instruction in marching; balance step, without advancing; advancing; the slow march; the halt; stepping short; stepping out; marking time; stepping back; changing feet; quick march; side, or closing step; turning when on the march; squad drill in single rank; marching and turning; marching as in file; diagonal march. 2. The boys to be ranged in companies, sized from both flanks, and told off in companies, half-companies, and sections, and practised in the marches and variations of step which have been taught in single rank; the formation of fours; increasing and diminishing front; wheeling; forming company square. 3. Calisthenics for girls.			

FOR FIFTH AND SIXTH CLASSES.—PART II.

Reading—Fifth Reader, and critical reading from selected standard English works.
Spelling—Prefixes, Affixes, and Roots. Verbal distinctions.
Writing—Miscellaneous and business forms.
Arithmetic—*5th*—Interest, discount, percentage, stocks, loss and gain, square root.
Arithmetic—*6th*—Stocks, partnership, alligation, cube root, etc.
Drawing—Object drawing, shading, drawing animals and plants; perspective.
Geography—Geography of the world. Political geography. Physical and mathematical geography.
Music—Musical notation, more commonly occurring keys. Singing sacred written music. Transposition from one key to another.
Grammar—Analysis and parsing. Transposition. Writing essays.
History—*5th*—Outline of Canadian and British history.
6th—Outline of Grecian and Roman history; British and Canadian history.
Algebra—*5th*—Four elementary rules. Easy simple equations.
6th—Simple equations and easy quadratics. Problems.
Geometry and Mensuration—Euclid, Books I., II. Areas of rectilinear figures. Volumes of prism, cone, sphere, etc. Areas of simple surfaces.

THE PROVINCIAL NORMAL SCHOOL.

I.— *As to Second Class Certificates.*

The present Regulations in the Compendium of School Law (1878, pages 189 to 191) are to remain in force, excepting where varied by the following:—

1. There shall be two sessions in each of the Provincial Normal Schools in each academic year for the professional training of Candidates for Second Class Public School Teachers' Certificates: the first session shall begin on the forenoon of the second Tuesday of September, and continue until the afternoon of the first Friday in February following (excepting during the High School Christmas vacation); the second session shall begin on the forenoon of the first Tuesday following the first Friday in February, and shall continue until the afternoon of the third Friday of June.

2. The subjects of instruction shall include the principles and theory of education, school organization, discipline, and government. A Course of Lectures shall also be delivered in the Elements of Psychology, where requisite arrangements can be made.

3. In addition to such strictly professional training, instruction shall continue to be given, as provided for in the existing Regulations, in Mental Arithmetic, Practical Chemistry, Music, Drawing, Hygiene, Drill and Calisthenics. And generally the Masters shall aim at developing the partial and imperfect attainments of the students in different departments of learning, into a higher and more complete knowledge.

4. The regular Masters in each Normal School shall consist of three, being the Principal, Science, and Mathematical Masters, whose respective duties will be defined by the Education Department; and the supervision and direction of the work of the Principal and Masters of each Normal School is hereby entrusted to Dr. McLellan, one of the High School Inspectors, subject to the instructions of the Education Department.

II.—*As to First Class Certificates.*

5. Whenever the requisite funds are supplied by the Legislative Assembly, there shall be a session for the professional training of Candidates for First Class Public School Teachers' Certificates, at the Education Department, from the second Tuesday of September until the Christmas vacation.

6. Such Candidates shall receive instruction in the branches of professional study prescribed in the existing Regulations contained in the Compendium of School Law (pages 192 and 193), according to the Course or Syllabus from time to time approved by the Education Department. They are also required to attend the Course in Psychology (except those who may have done so previously.

III.—*As to High School Teachers.*

7. In order to become the Head Master of a High School or Collegiate Institute, the following qualifications are required of each candidate:—

(1) Having regularly graduated in the Faculty of Arts of some University in Her Majesty's dominions, and having also furnished satisfactory evidence to the Education Department that he has either taught successfully for two years as a legally qualified Assistant in one or more of the High Schools of this Province, or is the holder of a First Class Public School Teacher's Provincial Certificate.

8. In order to become an Assistant High School Master, the following qualifications are required:—

(1) Being the holder of a First Class Public School Teacher's Provincial Certificate; or

(2) Having regularly graduated in the Faculty of Arts of some University in Her Majesty's dominions, and also having obtained the Professional Certificate required for First Class Public School Teachers; or

(3) Being an Undergraduate in the Faculty of Arts of any such University of the standing of the fourth year, and having duly passed the examination prescribed at the end of the third year, and also holding a First Class Professional Certificate as a Public School Teacher; or

(4) Special Certificate may be granted by the Minister upon the recommendation of the High School Inspectors, when the special circumstances of a particular school are shown to justify this; but any such special Certificate shall be valid only in and for the particular school in respect of which it may be granted.

9. The foregoing shall take effect on and from the end of the summer vacation, but shall not affect any certificates of qualification heretofore granted by the Education Department.

COLLEGIATE INSTITUTES.

I. The following conditions are required from each Collegiate Institute now existing for its continuance, and for the establishment and continuance of any new Collegiate Institute, namely:—

1. Suitable School buildings, out-buildings, grounds, and appliances for physical training.

2. Laboratory, with all necessary chemicals and apparatus for teaching the subject of Chemistry properly.

3. Four Masters at least, each of whom shall be specially qualified to give instruction in one of the following departments:—English, Classics, Mathematics, Natural Science, and Modern Languages: the teaching staff of the Institute being such as to provide the means of thorough instruction in all the departments mentioned.

4. The excellence of the school, as required by the foregoing, must always be maintained to justify the special grant in each year.

II. No new Collegiate Institute shall be established unless *all* of the above conditions are complied with; and unless the yearly salaries of the four specially qualified Masters required by condition (3) amount in the aggregate to the sum of $5,000 at least.

III. In case it shall appear, after due inquiry, that any Collegiate Institute has made default in the performance, observance, or fulfilment of any of the conditions of these Regulations, or in maintaining the proper standard of efficiency, the Lieutenant-Governor in Council may withdraw its status and rights as a Collegiate Institute.

IV. The foregoing are intended to apply to each Collegiate Institute now existing, or newly established, on and from the 1st of January, 1883, or as soon thereafter as these Regulations may be ratified by Resolution of the Legislative Assembly.

CONDITIONS FOR OBTAINING PUBLIC SCHOOL TEACHERS' CERTIFICATES.

I.—*For Third Class Certificates.*

1. The existing Regulations shall continue in effect, except as hereinafter varied.

2. Every Candidate for a Non-Professional Third Class Teacher's Certificate must pass the Intermediate Examination prescribed by the Amended Regulations respecting the course of study in High Schools, and an additional examination in the following subjects:—

(1) Mental Arithmetic.

(2) Two of the optional subjects or groups of subjects so prescribed for the Intermediate Examination, in addition to the one taken by such Candidate at his Intermediate Examination, provided that the groups of Algebra and Euclid, and of History and Geography, and of Physiology and Hygiene must be taken, either at the Intermediate or additional examination.

II.—*For Second Class Certificates.*

3. Every Candidate for a Non-Professional Second Class Teacher's Certificate, who has passed the examination for the Non-Professional Third Class Teacher's Certificate, may present himself at the next or any other subsequent yearly examination for Non-Professional Second Class Teacher's Certificates.

4. The subjects for the Non-Professional Examination of Second Class Candidates shall be the same as those required to be taken by Candidates for Non-Professional Third Class Certificates, But the questions shall be separate and distinct, and of a higher standard.

5. The times of these Non-Professional Examinations shall be in the same week, and as far as may be, concurrent with the Intermediate.

6. A female Candidate may, at either of the above-mentioned examinations, substitute for Algebra one of the subjects of French, German, Music, or Botany, in which she has not been examined for the Intermediate.

7. The foregoing shall take effect at and from the end of the summer vacation.

III.—*For First Class Certificates.*

8. Whenever the Session for the professional training of First Class Candidates at the Education Department is established, each Candidate will be required to attend and to pass an examination in the work of the Session, and this condition shall apply to all grades of First Class Certificates.

LIST OF TEXT-BOOKS IN BOTANY AND AGRICULTURE.*

I. Public Schools.

1. Public School Boards and Trustees are now authorized to require Teachers in their employment to give occasional lessons in Elementary Physics and Principles of Agriculture. The following Text books are therefore recommended and authorized for their use, as well as that of pupils receiving such instruction :—
Any Canadian or English editions thereof :—

		Maximum Retail Price.
Introductory Primer.	By Huxley	$0 30
Chemistry "	By Roscoe	0 30
Physics "	By Stewart	0 30

First Principles of Agriculture—by Henry Tanner, F.C.S., Examiner in Principles of Agriculture, under the Government Department of Science, England.....1s. stg., or 30 cts.

II. High Schools.

1. High School Boards are now authorized to provide means of instruction in Botany and Principles of Agriculture as optional subjects. The following Text Books are therefore recommended and authorized for use in High Schools, as well as in the 5th and 6th classes of the Public Schools :

2. In Botany—The Elements of Structural Botany, with Special Reference to the Study of Canadian Plants. By Professor Macoun and H. B. Spotton, M.A..... 90 cts

3. In Agriculture—(1) First Principles of—by Henry Tanner, F.C.S., Examiner of Principles of Agriculture, under the Government Department of Science, England.....1s. stg., or 30c.

(2) For advanced pupils only—Elementary Lessons in the Science of Agricultural Practice, also by Henry Tanner..3/6 stg. : or $1.05.

DISTRIBUTION OF HIGH SCHOOL GRANT.

I. The annual Legislative Grants to High Schools and Collegiate Institutes shall be distributed on the following basis, viz. :—

A. High Schools.

1. Every High School shall receive a fixed grant of $500, *provided* it has at least *one* assistant teacher who is
(*a*) A Graduate of a University, or
(*b*) An Undergraduate of the fourth year's standing, or
(*c*) The holder of a First Class Provincial Certificate.
If this condition be *not* complied with the minimum grant shall be $400.

2. Every High School that has at least *three* qualified instructors shall receive, in addition to the fixed grant, 45 per cent. of the amount by which the aggregate sum paid annually for Teachers' salaries shall *exceed* $2,000—this additional grant is in no case to exceed $750.

B. Collegiate Institutes.

3. Every Collegiate Institute complying with all the conditions prescribed by the Education Department shall receive
(1) The fixed High School grant of $500.
(2) In addition, as in the case of High Schools, 45 per cent. of the amount by which the aggregate sum paid annually for Teachers' salaries shall exceed $2,000, but this additional grant is in no case to exceed $750.
(3) An additional grant of 33⅓ per cent. of the amount by which the aggregate sum annually paid for Teachers' salaries shall *exceed* $5,000—this additional grant in no case to exceed $750.

II. This Distribution shall be made by the Education Department half-yearly during the respective periods ending on the 30th of June and 31st of December.

III. The foregoing shall take effect on and from the 1st of January, 1883.

*Fleming's "Analysis of the English Language" has been removed from the authorized list of text books.

THE HIGH SCHOOL GRANT AND MASTERS' SALARIES.

The following circular which has been sent out to the parties interested speaks for itself. It deals with a subject of the greatest importance to all high schools :—

Galt, August 21st, 1882.

Sir :—

At the meeting of the High School Section of the Ontario Teachers' Association, the new regulations for the distribution of the Legislative Grants to High Schools and Collegiate Institutes were discussed.

It was felt that even if the principle of the distribution were acknowledged as fair and true, the proposed application of it would bear adversely upon many of the smaller Schools, and upon most of the larger Schools and Institutes.

A modification of the Minister's scheme was finally agreed to; and a Committee consisting of Mr. Williams, of Collingwood, Mr. Hunter, of Waterdown, and the subscriber, was appointed to wait upon Mr. Crooks and lay before him the views of the Masters.

This modified scheme is set forth in the following resolution :—

"That inasmuch as the proposed scheme will bear hardly upon the smaller Schools, and also upon many of the larger Schools, all of which have been doing work worthy of Government encouragement, therefore the High School Masters' Section respectfully recommends that the Minister of Education modify his proposed scheme as follows :—

(1.) Every High School to receive a fixed grant of $500.
(2.) Every High School employing at least two teachers to receive, in addition, 25% of excess of amount paid for salaries above $1500; but the maximum grant under this head to be $125.
(3.) Every High School employing at least three teachers to receive, in addition, 40% of the excess of the amount paid for salaries above $2000; but the maximum grant under this head to be $1000.
(4.) Every Collegiate Institute to receive, in addition, a fixed grant of $500.
(5.) Every Collegiate Institute to receive, in addition, 20% of excess of amount paid for salaries above $5000; but the maximum grant under this head to be $250.

[It will be seen that the sliding scale runs in clause (2) from $1500 to $2000; in clause (3) from $2000 to $4500; and in clause (5) from $5000 to $6250; and that the seeming hiatus is filled by the special grant under clause (4).]

Furthermore, that if the Minister cannot see his way to the adoption of this modification in its entirety, this Section is of the opinion that it should be adopted in spirit, so that the method of distributing the grants should recognize the claims of the smaller Schools, and that the encouragement given by the Government should be continuous from the smallest School to the largest and best equipped Schools."

It will be noticed that the scheme as proposed by the Masters breaks down the invidious distinction between High Schools and Collegiate Institutes. A High School will be encouraged by Legislative aid until the annual amount paid by it for salaries is $4500. Then, if otherwise it complies with the regulations and is acknowledged a Collegiate Institute, it will at once be able to pay $5000 for salaries; since it will then receive $500, the fixed grant for each Collegiate Institute.

The Committee are anxious to obtain the fullest possible information as to the probable effect upon each school of the modification proposed by the Masters, and therefore respectfully ask you to answer the following questions :—

(1.) What was the total Legislative grant to your School for the year 1881 ?
(2.) What was the total amount paid for salaries in your School in and for the year 1881 ?
(3.) What is the yearly fee charged to your pupils ?
(4.) What is the approximate average attendance ?

Also, the Committee will be obliged if you state whether you think the "modified scheme" (1) more equitable than that proposed by the Minister ; (2) fair and equitable in itself.

Again, supposing, as is possible, the amount of the Legislative appropriations is not large enough to warrant the Minister in adopting this modification in its entirety, be kind enough to state what you think would be the fairest re-adjustment of it, keeping in view the claims of all the Schools, and the principle of the continuous sliding-scale.

If possible let your reply be sent to the undersigned not later than the first of September.

Respectfully yours,

John E. Bryant,
Chairman of Committee.

To the Head Master or Principal

of.....

ONTARIO DEPARTMENTAL REGULATIONS.

COUNTY MODEL SCHOOLS.

1. Besides the existing County Model Schools now established, when, from the large area and population of any county, it is necessary to establish more than one Model School therein, a further Model School or schools may also be established by the County Council, with the approval of the Education Department.

2. In the case of two or three contiguous counties, of small area and population respectively, and when for this reason it may be unnecessary that a Model School should exist in each county, the Councils thereof may mutually agree to establish a Union County Model School for such counties, subject to the approval of the Education Department.

3. No Public School shall become a County Model School unless the following requisites are complied with:—

(1) Every Head-master must hold a First-class Provincial Certificate, and there must be three assistants at least, each holding a Provincial Certificate, but any Head-master who has hitherto efficiently discharged the duties of a Model School Principal shall not be affected in his present position.

(2) In all cases where County Model Schools are established in Union Schools, the Public School classes must be conducted so as to be practically independent of the High School classes, and the Head-master of the Public School department and his assistants shall respectively hold the qualifications above prescribed

(3) The Public School should be provided with one room for each class or division thereof, and also with all requisite educational appliances, so soon as the Public School Board can do so conveniently, having regard to the resources of their school.

(4) A room should also be supplied, in which the Head-master may give professional instruction to the teachers-in-training, and as it may be separate from the Public School itself, such room can in most cases, be obtained for the session, without expense, in some public hall in the municipality. As the professional instruction to be so given by the Head-master, in his capacity of Principal of the County Model School, is essential to the training of students therein, it shall be the duty of the Public School Board to leave him free to give at least two hours each day to the supervision of the teachers-in-training while they are engaged in actual teaching.

4. Instead of two terms of two months each, as at present, there shall be one session of three months in each year, beginning on the morning of the second Tuesday in the month of September, and thence continuing into the month of December for the period of about thirteen weeks.

5 As the Third-class Teachers' non-professional certificate should, under the amended Regulations, represent sufficient knowledge in the subjects of the High School course, the work of instruction in the County Model School is to be deemed the professional complement requisite for a full third-class certificate.

The professional work of the County Model School is intended to develop the imperfect knowledge of the *student* into the more logical knowledge of the *teacher*, and shall include:

1st. *Special reviews of the branches taught in the first four classes of the Public Schools*, especially Reading and Mental Arithmetic.

2nd. *Physiology and Hygiene.*

3rd. *Principles of Education, School Organization, Management and Discipline.*

4th. *Methods of Instruction.* The best methods of teaching the various subjects prescribed for the first four classes in the Public Schools, especial attention being given to the best methods of giving the *first lessons* in these subjects.

5th. *Observation and Reporting*—(*a*) Observation of methods illustrated in the Principal's model lessons; (*b*) observation—under the Principal's supervision, when possible—of methods illustrated by the assistant Model School teachers. And reporting to the Principal the results of their observations, especially as to (*a*) the object of the lessons observed; (*b*) steps by which this object was attained.

6th. *Practice in Teaching.* After proper instruction and examples in methods, each teacher-in-training shall have practice in applying the methods exemplified (*a*) by using his fellow-students as a class: (*b*) by teaching a class of pupils—say 10 or 12 —before the Principal or some other competent critic; (*c*) by teaching in the several divisions of the school. No teachers-in-training should be required to practise as (*a*) in actually teaching any subject till the best method of presenting the subject has been explained and actually exemplified by an experienced teacher. Also, practice as in (*a*) should precede practice as in (*b*), and practice as in (*b*) should precede practice as in (*c*).

6. The teachers in-training should employ their whole time, during the term of the Model School, according to a time-table to be drawn up by the Principal and approved by the Minister; and the Principal shall keep a register to show the actual progress of each teacher-in-training; and it is also the duty of the Principal to see that every teacher-in-training is thoroughly instructed and trained in the work of the course as prescribed in Regulation 5

7. The present syllabus of lectures, at page 245 of the Compendium, is intended to be revised, but it should, in the meantime, continue to form the ground work of the Principal's instruction, except where, in his judgment, it would conflict with the course of training prescribed in Regulation 5.

8. In any county where there are two or more Model Schools the County Board shall assign to each such number of applicants as the capacity of the school will permit of, and in cases where there may be a deficiency of room in any Model School to accommodate all the applicants, the County Board may give preference of admission to such candidates as have gained the highest number of marks at the non-professional examination for third-class certificates.

9. The Principal shall report to the County Board of Examiners, at the close of the session, on the fitness of each candidate, according to a form to be provided by the Department. The teachers-in-training shall be subjected to oral and written examinations at the end of the session by the County Board of Examiners, who shall, upon the Principal's report and the results of the examinations, taken together, decide to whom certificates shall be awarded.

10. All County Boards of Examiners are authorized, by resolution of such Board, to require from teachers-in-training in their County Model School the fee of five dollars per session for instruction therein.

11 The Legislative and Municipal Grants, as well as all sums from fees for instruction shall be payable to the Public School Board, to be applied for the satisfactory maintenance of the County Model School, according to the conditions and standards prescribed by these regulations, for the professional training of candidates for third-class public school-teachers' certificates.

12. The inspection of the Model Schools shall be governed by the Regulations of the 30th September, 1879, but the Minister is authorized, with the approval of the Education Department to appoint any one or more Inspectors, in order, through him or them, to secure a uniform standard and system of operations, as well as to afford useful information to County Boards, Public School Inspectors, and Principals, in regard to the conduct of such schools, and other matters relating thereto.

13. The foregoing shall take effect on and from the end of the Summer vacation.

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

LANARK.—The annual meeting of this society was held at Almonte on the 25th and 26th May. A large number of teachers were present and took a lively interest in the work presented. After the reading of the minutes by the secretary, Mr. John Thornton, Perth public school, F. L. Michell, president of the association, delivered an address on the subject of teachers' institutes. He dwelt particularly upon the benefit which the teacher may derive both intellectually and practically, by a careful attention to the subjects discussed, and strongly urged upon the teachers the necessity of attending at least one meeting each year. Mr. Whittington, B. A., head master high school, Almonte, then introduced the subject of grammar, dwelling more particularly upon the subjunctive mood. By a well arranged scheme he showed that the indicative mood is used in true or probable propositions whilst the subjunctive is employed when the statement is false, improbable or impossible. Mr. Whittington treated the subject in his usual clear and comprehensive style, and elicited the commendation of those present. Mr. Boddy, of the Pakenham school, gave a practical paper on elementary bookkeeping. He indicated his method of introducing this subject to a class, and his blackboard proved him master of this subject. Mr. Anderson opened the afternoon session by an excellent paper on "How I teach writing." By illustrations on the blackboard he exemplified the main features of his method. He spoke against the use of the new head-lined copy-books, and strongly recommends the teacher to set the copies for the pupils. He said that proficiency in this subject is attainable only by constant effort on the part of both the teacher and pupil. Mr. McCarter read a paper on composition, in which he censured the method adopted by some of teaching composition as a distinct branch, and advised the method of teaching this subject in connection with each reading lesson. This paper was well read, interesting and profitable to all. In the evening the association was entertained by a very interesting and instructive lecture on "Electricity" by Mr. Fawcett, B. A.. head master high school, Carleton Place. The lecturer explained by diagrams and apparatus the action of this subtle fluid, interspersing his discourse with many amusing experiments. The audience gave Mr. Fawcett its undivided and appreciating attention for more than an hour, and we feel assured that he cannot but be popular as an expounder of his favorite studies. The first business of the second day was the election of officers. The following officers were elected for the ensuing year:—Pres., F. L. Michell; vice-pres., John McCarter; sec.-treas., John Thornton; committee of management, Messrs. Anderson, McGregor, Steele, Fawcett, and Miss Todd; auditors, W. P. Robertson and R. J. Dougherty. Before proceeding with the regular routine business, Mr. Clarke, M. A., Smith's Falls high school, gave a short and excellent specimen of school calisthenics. Mr. Michell then took up practical arithmetic for the junior classes. He threw out many valuable suggestions in reference to the teaching of this important subject, and pointed out that consecutive thought and correct habits of reasoning can be acquired only by thorough and systematic teaching in the lower departments of our schools, otherwise failure is the inevitable result. He drew the diagram of a numeral frame greatly superior to the one at present in use. Mr. Clarke again gave a very interesting and concise lesson on the railway system of Canada, touching not only upon those now in operation, but also upon proposed routes and those in process of construction. By means of several maps and the blackboard he located our several railways so plainly that he who "runs may read." Mr. Clarke was followed by Mr. Menzies in a well worded paper, "Our Model schools." He admitted at once that no fault could be found with the model and normal schools as such, but in some respects the training of the students in our normal schools was far from satisfactory. Some of the grievances mentioned seemed so grave as to be almost incredible, had his statement not been confirmed by graduates of both our normal schools. The session was brought to a close by Mr. T. O. Steele, head master Perth model school, in a paper entitled "Spots on the Sun." The sun alluded to was our educational system and the spots, the inconsistencies and defects thereof. He criticised the separate school Act, and regarded the appointment of a separate school inspector as unjust and useless. He opposed the introduction of compulsory reading of the Bible in schools and also of any religion or moral training except by precept and example. He found fault with the present mode of conducting the model schools, and touched upon the system of "cram" necessarily imposed upon the pupils of the schools of our cities and towns.

— THE —

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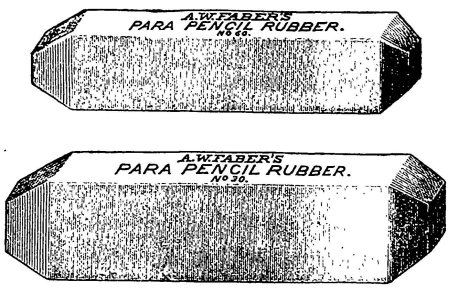

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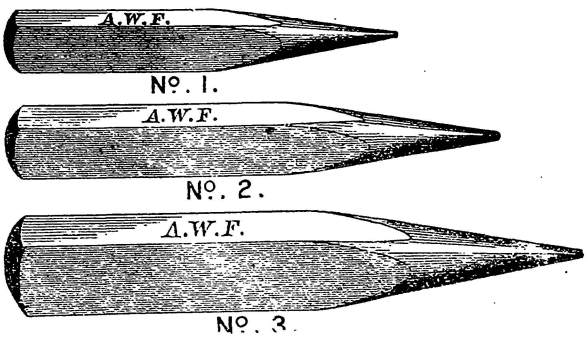

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HINTS ON TEACHING SPELLING.

(From the Preface of GAGE'S PRACTICAL SPELLER.)

When should Pupils begin to Learn to Spell?—There should be no *oral* spelling, or *written* spelling either, *from memory*, during the first year and a half or two years of school life; yet pupils should be learning to spell from the start. How? By *copying*, COPYING, COPYING. By copying in script well-written sentences set by the teacher on the board. Sometimes these sentences may be taken from the primer, but they should generally be the language of the pupils themselves, including certain words given by the teacher.

Assigning Spelling Lessons.—The teacher should not merely say, "Prepare the tenth lesson," or, "Your dictation will be the first twelve lines on page 24." The pupils should pronounce after the teacher the words of the lesson, looking at them carefully as they do so. Peculiar or difficult words should be written on the blackboard, and spelled simultaneously by the pupils, and hints should be given to aid in the preparation of the lesson.

Preparing Spelling Lessons.—We wish to teach the forms of the words, not their sounds. Unfortunately, the forms of words do not always agree with the sounds in English; hence the form of a word must be impressed on the mind through the *eye*, and not the *ear*. It is perfectly clear, therefore, that the art of making good spellers consists in teaching pupils to see words accurately. The London Times once said, "Spelling is learnt by *reading*, and nothing but *reading* can teach *spelling*." It may be accepted as a rule that a good reader is always a good speller. These facts all point the thoughtful teacher to the conclusion that we have already stated;—spelling depends on the power of *seeing with precision*. It follows that the exercise which compels the pupil to look most carefully at words must be the best method of preparing a spelling lesson. Unquestionably this exercise is *transcription*. Let the pupils copy on their slates the lesson to be prepared. The lesson may be copied as a home exercise, if due care be taken by the teacher in examining both spelling and writing. This is necessary in order to compel scrutinizing attention to the words to be copied. The whole value of the exercise depends on this being done.

Repeating the letters of a word orally is of little lasting benefit. Make the pupils *see the words*, and if possible *never let a pupil see a word wrongly spelled.*

Testing Spelling Classes.—There are only two methods, *oral* and *written*. The *oral* method alone is of very little practical value. An American writer records the case of a young man "who won three prizes at spelling schools, but made five mistakes in spelling in a note written to a School Board." Oral spelling does not accustom the *eye* to the form of the word in writing. This is a fatal objection to it, and all modern teachers recommend that spelling lessons be conducted chiefly in writing.

Correcting Spelling Lessons.—They must be corrected thoroughly. If proper preparation has been made as recommended *very few* errors will be made. In a large class the teacher will not be able to examine personally the book or slate of each pupil, except in the case of review lessons consisting of words previously misspelled in the class. These should always be examined by the teacher. In other lessons one of the following plans may be adopted:—

1. Pupils exchange slates, and the teacher gives the correct spelling word by word, the pupils marking those that are wrong.
2. Pupils retain their own slates, and different pupils are called on to spell the words. Those agreeing with the spelling given indicate by raising the hand, *before the teacher decides as to its correctness*. Marking as before.
3. Slates are exchanged and the corrections made as in No 2.
4. While the teacher writes the correct spelling on the board, each pupil may correct his own work, and slates or books are exchanged for revision only. The latter method is probably the best with honest pupils.

In all cases where slates are exchanged the pupil owning the slate should have the right to appeal against the marking done by his neighbor.

Reviews.—Each pupil should write correctly the words which he misses, about five times, to impress the correct forms on his mind. In addition to this he ought to make a list at the end of his book of all the errors he makes. From this list the teacher should prepare his reviews. The words missed are the only words that need to be taught. "Leave no enemies in the rear." *Review Regularly.*

General Suggestions.—1. The teacher should always *articulate clearly* and *pronounce correctly* when giving words for spelling.

2. Never *overstrain* the enunciation of a word in order to indicate the spelling.
3. Allow only *one trial* in spelling orally or in writing.
4. In spelling orally, the divisions into syllables should be marked by *slight pauses*, but in no other way.
5. Do not assign lessons *too difficult* for the pupils who have to prepare them. This compels the pupils to spell badly.
6. It is desirable that spelling should be taught to a considerable extent by means of *composition*, in order to give the pupils practice in spelling the words in their *own* vocabularies.
7. In some of the dictation lessons in this book time may be saved by having only the words in *italics* spelled. The teacher should read the whole sentence and emphasize the words to be spelled.

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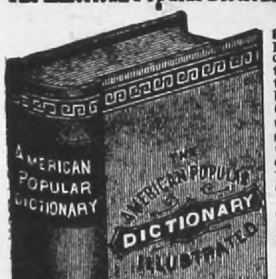

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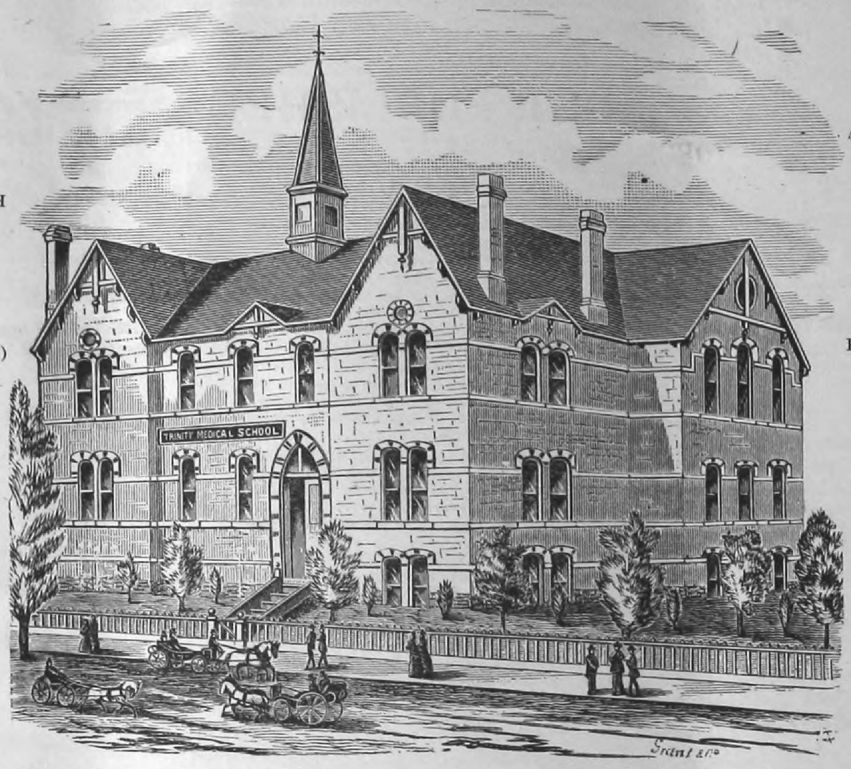

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Prof. of Physiology and Histology.

J. FRASER, M.D., L.R.C.S., Edin.; L.R.C.P., London; Physician to Toronto Genera Hospital.—482 Yonge Street.
Demonstrator of Anatomy.

G. S. RYERSON, M.D., L.R.C.P. and S., Edin.; Surgeon to the Mercer Eye and Ear Infirmary, and Toronto General Hospital.—317 Church Street.
Lecturer on the Eye, Ear and Throat.

MATRICULATION.—Students are advised before commencing their medical studies to pass the Matriculation Examination of the Medical Council of Ontario or Quebec, either of which will be accepted by the University of Trinity College. Students from the Maritime Provinces, Ontario, or the United States, who do not desire to pass the Council Examination, will be admitted to attendance on Lectures, but must present themselves for the Matriculation Examination of Trinity University, on the 2nd Saturday of October or March, or the Matriculation in Toronto University at the usual time. The Matriculation of the Universities may be passed at any time before graduation.

REQUIREMENTS FOR DEGREE.—The candidate must be 21 years of age; and (1) must have studied medicine four years, and during that time attended *four winter sessions;* or (2) present a certificate of one year's study with a medical practitioner, and tickets of subsequent attendance upon *three winter sessions.*

HOSPITALS.—The Toronto General Hospital has a very large number of patients in the wards, who are visited by the medical officers in attendance. The attendance of out-door patients daily is also very large, and thus abundant opportunities are enjoyed by students, for acquiring a familiar knowledge of Practical Medicine and Surgery, including not merely major operations, but minor Surgery of every kind, ordinary Medical Practice, the treatment of Venereal Diseases, and the Diseases of Women and Children. The Burnside Lying-in Hospital, amalgamated with the Toronto General Hospital, has recently had its staff largely increased; and will afford special and valuable facilities for the study of Practical Midwifery. The large new building, close to the Hospital and School, will be very convenient for students attending its practice. The M rcer Eye and Ear Infirmary is also amalgamated with the Toronto General Hospital, and affords special facilities for students in this department.

TORONTO DISPENSARY.—This was established several years ago, and affords abundant facilities for practical instruction in the diagnosis and treatment of diseases of all forms. It is open to students free of charge.

CLINICAL TEACHING.—Daily clinical instruction in the spacious wards and theatre of the Hospital, will be given by members of the Hospital Staff on all interesting cases, Medical and Surgical. ☞ Arrangements have also been recently made for the delivery of *daily clinics*, in the Theatre of the *Hospital*, by the respective professors in medicine and surgery of both schools, in addition to the usual clinics in connection with the Hospital out-door patients.

PRACTICAL ANATOMY.—The dissecting room is large, well lighted and ventilated, and abundantly provided with excellent material. The demonstrator and his assistants will be in attendance daily from 10 to 12 a.m.

FEES FOR THE COURSE.

LECTURE FEES.—Anatomy, Surgery, Practice of Medicine, Obstetrics, Materia Medica, Physiology, and General Chemistry, $12 each; Practical Anatomy, Practical Chemistry, including Toxicology, Normal Histology, and Pathological Histology, $8 each; Clinical Medicine, Clinical Surgery, and Medical Jurisprudence, $6 each; Botany and Sanitary Science, $5 each. Registration payable once only, $5. OPTIONAL BRANCHES.—Zoology, Surgical Appliances, and Medical Psychology, $5 each. All Students after having attended and paid the fees, for two full courses of lectures in any branch, shall be entitled, without further charge, to a perpetual ticket for that branch, except the following:—Practical Anatomy, Practical Histology, Normal, or Pathological, and Practical Chemistry, every course of which attended, must be paid for. Botany and Sanitary Science, are charged for once only. Dental and other casual students can attend any course or courses of Lectures they may desire in this Institution, on paying the usual fees for the same.

Full information respecting Lectures, Fees, Gold and Silver Medals, Scholarships, Certificates of Honor, Graduation, Diplomas, Fellowship, etc., will be given in the annual Announcement, for which, apply to

W. B. GEIKIE, M.D., Dean, or A. J. GEIKIE, M.D., Assistant-Secretary.

The Canada School Journal.

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CANADA SCHOOL JOURNAL HAS RECEIVED

An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course, unable to make any distinction in a list containing names from all parts of the United States and Canada.

THE QUALIFICATION OF HIGH SCHOOL MASTERS

A few years ago the sole qualification required of a candidate for the head mastership of a grammar school was the possession of a degree from some British or Canadian University. In those days any undergraduate of such a university was legally qualified to become an assistant master in a grammar school. Of late years something has been done by the Education Department in the way of prescribing a certain amount of preliminary experience of a professional kind as a condition of being allowed to teach in a high school, and in the recently published regulations a further step has been taken in the same direction. These require that in order to become a head master a candidate must not only have graduated in some university in Her Majesty's dominions, but must also be able to show either that he has taught successfully for two years as an assistant or that he is in possession of a first class public school teacher's professional certificate. In order to qualify as an assistant master a candidate must now be (1) the holder of a first class public school teacher's certificate, or (2) a graduate with a first class professional certificate, or (3) a fourth year undergraduate with the latter certificate, or (4) the holder of a special certificate which will be valid only for the school in respect of which it may be granted. To put the matter briefly, each high school teacher must first have been a public school teacher or must have attended one of the Normal Schools.

While opinions may vary as to the precise test of professional qualification that is most expedient there can hardly be two opinions as to the necessity of requiring high school masters to know something about the art of teaching before they are allowed to take charge of either a class or a school. It is not easy to understand why professional experience was not sooner required of candidates for high school positions when the tests for public school certificates were each year becoming more and more stringent. Surely high school work is at least as important as public school work, apart altogether from the consideration that most of our public school teachers now get their non-professional training in high schools. While attending these institutions young teachers in training are unconsciously forming themselves on the teaching models presented for their imitation, and if the head master or his assistant is inexperienced or unskilful how can the result be anything but injurious to the intending teacher who comes into daily contact with them?

There are some, no doubt, who will argue against the enforcement of the above requirement on the ground that no graduate of a university should be subjected to the humiliation of having to pass a session at a Normal School. But it should be borne in mind that none of our colleges as yet possess chairs of pedagogy, and that there is therefore no humiliation in an intending high school teacher getting his professional training at the only institutions where such a training can be procured. It is a choice between getting it there and being allowed to acquire the necessary skill by dint of dearly purchased experience—dearly purchased so far at least as the pupils are concerned.

Others will say that it is not a good thing to prevent undergraduates, who are compelled to earn money to pay their college expenses, from teaching as assistants in order to obtain the means of completing their own education. The obvious reply is that such students should not be placed in a position to educate themselves at the expense of boys and girls whose time is just as precious as their own. The country can better dispense with one of its many graduates than it can afford to see the youth of any locality losing precious time at school.

The only question in reality is whether, other things being equal, a teacher with a professional training is better than one without it. If there is a second question it is whether such a requirement is not likely to so diminish the supply of teachers as to greatly increase the cost of maintaining high schools. Of that there is now no fear. The supply will always be equal to the demand, provided that teachers now qualified are allowed to remain so, in accordance with the usual practice of the Department. The interests of the impecunious student should have no place in the consideration of the question. If he is very anxious to finish his college course and is made of the right stuff he will find a way of getting to the end of it and will be all the better for the struggle. In any case the interests of hundreds of young people of both sexes cannot be made subservient to his in a matter of such vital importance. We are assuming, of course, that a man will be all the better a teacher, whatever his scholarship or natural aptitude may be, for having had a professional training—an assumption so reasonable that no one is likely to call it in question. It is now deemed necessary to have a professional training for divinity, law, medi-

cine, and dentistry, callings in which practical skill is the great *desideratum*, and surely it is not asking too much to require those who are about to undertake the most difficult of all callings —that of a teacher—to have some professional outfit.

THE NORMAL SCHOOLS.

The Ontario normal schools are elevated by the new Departmental regulations into a position of greater responsibility than that which they have heretofore occupied. Henceforth they are to become the professional training-schools for high as well as public school teachers, and to be made more distinctively than ever before pedagogic institutions. It is obvious that if there is to be a profession of teachers the entrance to it must be through some professional training, and that training can best be acquired in this Province at one or other of the provincial normal schools.

The change in the status, and to some extent in the functions of these schools, rendered it absolutely necessary that the system pursued in them should be uniform. Teachers trained in one of the institutions should, in a general way at least, have the same professional views and be ready to pursue the same practical methods as those trained in the other. To secure this it was necessary to place them under individual control, and for the post of "Director" the Government have wisely selected Dr. McLellan. His previous career has been well calculated to fit him for the new duties entrusted to him. He was for many years a successful teacher in different parts of Ontario and in Nova Scotia. For more than ten years he has filled with equal success the difficult position of inspector of high schools. During that time he has been assiduous in his efforts to inculcate more intelligent methods by addressing teachers' institutes, and many a young teacher has been in this way helped over difficulties and inspired with enthusiasm for his work. The appointment is a most fitting one and we have no doubt that events will prove it so and justify the Minister's choice.

We are not amongst those who believe that little or no good work has been done in the normal schools in the past. On the contrary we know that in an unostentatious way they have been accomplishing a great deal—how much it is difficult to accurately estimate. But under the new arrangements still better results may fairly be expected and for these all educationists will earnestly look.

THE EFFECTS OF A CASTIGATION.

In language less objectionable than that of last month, and with a manner which may very properly be described as subdued, the *Educational Monthly* replies to our remarks on its recent coarse and malicious attack on the Minister of Education. We have no desire to repeat the castigation especially as the one already administered has had so salutary an effect. We are disposed rather to call attention to some of the admissions made while our contemporary was still suffering under a keen sense of well-deserved punishment. The following reads very much like an apology to Mr. Crooks, dictated by unfeeling and hard-headed proprietors, with business interests to subserve, to an editor who would like to repeat the language of last month or even out-do it:—

We have had no thought of upsetting the Government of the Province, of conducting any crusade against it, or of importing into our educational affairs any political feeling, or of writing against its head with partisan acerbity.

Of course there was acerbity in the language applied, but it was not "partisan" acerbity. It was absolutely necessary in the interest of education to describe the Minister of Education as "anomalously compounded of capriciousness and political partisanship;" as "dominated by his official importance" and having his "volition controlled by political bias or professional intrigue;" and as characterized by a "wordy flatulence" which is "only equalled by his pretentious ignorance." All this and a good deal more was said about the Minister without even a tincture of "partisan acerbity." The readers of the *Monthly* will be glad to learn that all political "influences" and "prejudices" are kept at "a long arm's length from education and educational affairs" in that sanctum. Long may it be so.

The *Monthly* feels aggrieved at any reflections on its language, as if they were attempts to curtail its liberty of criticism. We would be the very last to seek to deprive any one of his freedom in this respect, but it is the misfortune of some people that they can never learn to distinguish between civility and subserviency, and that they feel it necessary to use coarse language in order to be forcible. While we have often differed from the policy of the Minister we have never found it necessary to abuse him in language which would be out of place in the mouth of a magistrate addressing a pickpocket.

TEXT-BOOKS AND OTHER SCHOOL-BOOKS.

The following extract from an article in a paper published in the western part of this Province furnishes an excellent specimen of the loose talk so extensively indulged in with respect to school books:—

"'Marmion' with notes is to-day absolutely worthless in the market. Ten days ago they were going off like very hot cakes at a dollar apiece. Fifty cents each would be a very good price for them, if there was no mismanagement about the business. We hope Mr. Crooks will give his best personal attention to this whole book question without delay. Steps should be taken to secure some permanence in text-books and to have them supplied at one half present prices. The idea, too, of allowing the irresponsible authorities of Toronto University to decide what text-books the thousands of high school pupils are to use, seeing that only one or two per cent of them ever enter that University, is simply preposterous."

It is clear that the writer of this paragraph has made no effort to understand the question he undertakes to discuss. If English texts are to be studied at all there can surely be no objection to allowing publishers at their own risk to get out annotated editions of them. In many schools there are no reference libraries, and an edition of the prescribed text with full explanatory notes is to teachers and pupils so unfortunately situated a real boon. They are under no compulsion to buy such an edition. The text of "Marmion," without any notes, could be furnished for a mere trifle, but how many would pay ten cents for it when they could buy a well annotated edition

of it for ninety? Who has any right to find fault either with the publishers for providing such editions, or with the teachers and pupils for purchasing them? If they were compelled, by want of enterprise on the part of the publishers, to use unedited texts there would soon be an outcry of another kind. To ask the Minister of Education to interfere with the price of books not specially authorized by himself is as sensible as would be a request from the readers of the paper we quoted from, to Mr. Crooks to fix its subscription price. The publishers of edited texts know better than any one else what it costs to get them up, and when there are several rivals in the field the public may rest assured that the publishers will not make a gigantic fortune out of a work that has so limited a circulation.

The remarks about the University authorities are equally absurd. The work of preparing candidates for entrance into the University is carried on chiefly in the high schools, though the great majority of the pupils in these schools have no intention of going to college. But those who are preparing for the university examinations, as well as those who are not, study English, and the most obtuse can understand that it is better for the schools to have the pupils all reading the same work in English than to have them divided up into two or more classes. The Department wisely adapts its programme in English to that of the University, and it does this in the interest of the schools, not of the University. If it is preposterous thus to make the work in English in the high schools uniform then by all means get as much variety as possible introduced into the programme in order to provide employment for the teachers, who are, of course, hard set to keep themselves busy as it is.

—Some vigorous remarks on the necessity of paying more attention to English in England were recently made in a public address by Prof. J. F. Hodgetts, late of Moscow. After describing the Russian Educational system and calling attention to the importance attached to the study of German in Germany and of Russian in Russia be added :—"There are not above a dozen scholars in England who know English as every German student of philology knows German, and every Russian student, all round, knows Russian. Now, considering that our old English is the finest, the most copious, the strongest, and most musical of any language in Europe, while our literature is the richest, the most complete, and most instructive of any literature of either ancient or modern date, I think it time to make a strong appeal to the powers that be, urging the necessity of a study of English in England, as a chief subject for honours." At no distant day it will be a source of amazement that in the Provincial University of Ontario no English work older than Chaucer has ever been prescribed as a subject of study. It is the thing to be familiar with archaic Greek, Latin, German, and French, but few become familiar with the language of Spenser, and fewer still with that of Chaucer, while not a candidate is expected to be able to read the "Vision of Piers Ploughman," to say nothing of still older English and purely Anglo-Saxon writings. Those in this country who cultivate any acquaintance with these old works must do it, not as a matter of college reading, but during the pauses of busy professional life.

S. P. DAVIS, M.A.

As we go to press intelligence reaches us of the sudden death of S. P. Davis, M.A., who has for some time past filled the position of Principal of Pickering College. His loss will be keenly felt by a large and rapidly widening circle of friends, for to become acquainted with Mr. Davis was to admire and love him. After a successful course in Toronto University he graduated with distinction in that institution in 1875. During his attendance at University College he was more than usually popular with his fellow students on account of his geniality and unassuming worth. He selected teaching as his vocation and was well calculated to shine in his profession. Naturally an enthusiast, he threw himself into his work with the whole-souled earnestness that characterized all his undertakings. His connection with Pickering College commenced when he became assistant to J. E. Bryant, M.A., and when the latter accepted the principalship of the Galt collegiate institute Mr. Davis became his successor. Seldom, indeed, is it the lot of the journalist to record a more melancholy case of a life of promise cut short by an untimely death.

Geographical Notes.

CIVIC CORPORATIONS IN ONTARIO.

The following list of cities, towns, and incorporated villages in this Province has been compiled from the census of 1881 by Mr. W. S. Howell, of Thornyhurst. All villages with a population of less than 1000 have been omitted except the two that, in spite of their want of extent, are county towns. It is possible that the census may be misleading at times as to whether a place is technically a town or a village ; in the event of any mistakes having been made we shall be glad to publish the necessary corrections :

NO.	CORPORATIONS.	POPULATION.	COUNTY.
	I. Cities.		
1.	Toronto	86,415	York
2.	Hamilton	35,961	Wentworth
3.	Ottawa	27,412	Carleton
4.	London	19,746	Middlesex
5.	Kingston	14,091	Frontenac
6.	Guelph	9,890	Wellington
7.	St. Catharines	9,631	Lincoln
8.	Brantford	9,616	Brant
9.	Belleville	9,516	Hastings
10.	St. Thomas	8,367	Elgin
	II. Towns.		
1.	Stratford	8,239	Perth
2.	Chatham	7,873	Kent
3.	Brockville	7,609	Leeds
4.	Peterborough	6,812	Peterborough
5.	Windsor	6,561	Essex
6.	Port Hope	5,585	Durham
7.	Woodstock	5,373	Oxford
8.	Galt	5,187	Waterloo
9.	Lindsay	5,080	Victoria
10.	Cobourg	4,957	Northumberland.
11.	Barrie	4,854	Simcoe
12.	Goderich	4,564	Huron
13.	Cornwall	4,468	Stormont
14.	Collingwood	4,445	Simcoe
15.	Owen Sound	4,426	Grey
16.	Ingersoll	4,318	Oxford
17.	Berlin	4,054	Waterloo
18.	Oshawa	3,992	Ontario
19.	London East	3,890	Middlesex
20.	Sarnia	3,874	Lambton
21.	Strathroy	3,817	Middlesex
22.	Dundas	3,709	Wentworth

23.	Napanee	3,680	Lennox
24.	Bowmanville	3,504	Durham
25.	Petrolia	3,465	Lambton
26.	St. Mary's	3,415	Perth
27.	Paris	3,173	Brant
28.	Whitby	3,140	Ontario
29.	Prescott	2,999	Grenville
30.	Picton	2,975	Prince Edward
31.	Brampton	2,920	Peel
32.	Orillia	2,910	Simcoe
33.	Kincardine	2,876	Bruce
34.	Pembroke	2,820	Renfrew
35.	Orangeville	2,847	Dufferin
36.	Listowel	2,688	Perth
37.	Almonte	2,684	Lanark
38.	Amherstburgh	2,672	Essex
39.	Simcoe	2,645	Norfolk
40.	Clinton	2,606	Huron
41.	Walkerton	2,604	Bruce
42.	Perth	2,467	Lanark
43.	Thorold	2,456	Welland
44.	Niagara Falls	2,347	Welland
45.	Mitchell	2,284	Perth
46.	Mount Forest	2,170	Wellington
47.	Waterloo	2,066	Waterloo
48.	Newmarket	2,006	York
49.	Tilsonburg	1,939	Oxford
50.	Welland	1,870	Welland
51.	Meaford	1,866	Grey
52.	Palmerston	1,828	Huron
53.	Harriston	1,772	Wellington
54.	Oakville	1,710	Halton
55.	Niagara	1,440	Lincoln
56.	Milton	1,302	Halton
57.	Sandwich	1,143	Essex
58.	Durham	1,059	Grey

Villages.

1.	Yorkville	4,825	York
2.	Trenton	3,042	Hastings
3.	Gananoque	2,871	Leeds
4.	Seaforth	2,480	Huron
5.	Arnprior	2,147	Renfrew
6.	Smith's Falls	2,087	Lanark
7.	Dresden	1,979	Kent
8.	Carleton Place	1,975	Lanark
9.	Hawkesbury	1,920	Prescott
10.	Wingham	1,918	Huron
11.	Uxbridge	1,824	Ontario
12.	Dunnville	1,808	Welland
13.	Port Perry	1,800	Ontario
14.	Merritton	1,798	Lincoln
15.	Portsmouth	1,734	Frontenac
16.	Fergus	1,733	Wellington
17.	Exeter	1,725	Huron
18.	Morrisburg	1,719	Dundas
19.	Port Colborne	1,716	Welland
20.	Deseronto	1,670	Hastings
21.	Forest	1,614	Lambton
22.	Renfrew	1,605	Renfrew
23.	London West	1,601	Middlesex
24.	Brighton	1,547	Northumberland
25.	Aurora	1,540	York
26.	Aylmer	1,540	Elgin
27.	Parkhill	1,539	Middlesex
28.	Ridgetown	1,538	Kent
29.	Wallaceburg	1,525	Kent
30.	Georgetown	1,471	Halton
31.	Preston	1,419	Waterloo
32.	Campbellford	1,418	Northumberland
33.	Leamington	1,411	Essex
34.	Norwich	1,411	Oxford
35.	Port Elgin	1,400	Bruce
36.	Elora	1,387	Wellington
37.	Point Edward	1,293	Lambton
38.	Ashburnham	1,266	Peterborough
39.	Arthur	1,257	Wellington
40.	Caledonia	1,242	Haldimand
41.	New Hamburg	1,240	Waterloo
42.	Blenheim	1,212	Kent
43.	Kemptville	1,188	Grenville
44.	Bradford	1,176	Simcoe
45.	Parkdale	1,170	York
46.	Lucknow	1,162	Huron
47.	Fenelon Falls	1,155	Victoria
48.	Paisley	1,154	Bruce
49.	Millbrook	1,148	Durham
50.	Port Dover	1,146	Norfolk
51.	Southampton	1,141	Bruce
52.	Watford	1,132	Lambton
53.	Port Dalhousie	1,129	Lincoln
54.	Waterford	1,118	Norfolk
55.	Alliston	1,099	Simcoe
56.	Midland	1,095	Simcoe
57.	Penetanguishene	1,089	Simcoe
58.	Colborne	1,079	Northumberland
59.	Burlington	1,068	Halton
60.	Madoc	1,065	Hastings
61.	Newcastle	1,060	Durham
62.	Stayner	1,028	Simcoe
63.	Iroquois	1,001	Dundas

The only county towns with less than 1000 of a population are the villages of:

L'Orignal	858	Prescott
Cayuga	830	Haldimand

MISCELLANEOUS.

In our June number we gave the boundaries of the four new districts into which the North-west territory had just then been divided. It is now rumored that the region west of Manitoba is to be re-arranged into two new provinces, Qu'Appelle and Saskatchewan, the former extending from Manitoba to the third principal meridian, and the latter from that meridian to the Rocky Mountains.

It is further rumored that Regina, the new town located on "Pile-of-bones" creek, is to be the capital of Qu'Appelle, and Edmonton of Saskatchewan.

Mathematical Department.

INDIRECT DEMONSTRATIONS.

A well-known mathematical writer states that "Indirect demonstrations are often less esteemed than direct demonstrations." Another observes that "The indirect is, in general, less readily appreciated by the learner than the direct form of demonstration. The indirect form, however, is equally satisfactory, as it excludes every assumed hypothesis as false except that which is made in the enunciation of the proposition." He then proceeds to notice that Euclid employs indirect proofs like those of I. 6, 14, etc., and indirect proofs like those of I. 19, 25, etc., in which it is shown that neither side of a possible alternative can be true, and from this the truth of the proposition is inferred.

All proofs of this kind depend on the *Principle of the Excluded Middle*, which was known to the earliest Greek logicians, and is thus enunciated by Thompson:—"Either a given judgment must be true, or its contradictory; there is no middle course. In other words if two propositions are contradictory one of them must be true, and the other false, so that the proof of a proposition forces us to abandon its contradictory, and the disproof of a proposition compels us to accept its contradictory." Or, as Mr. Mill states it, "That the premises cannot be true if the conclusion is false, is the unexceptionable foundation of the legitimate mode of reasoning called a *reductio ad absurdum*."

For example, in the sixth proposition of Euclid I. the question to be decided is whether two certain lines are *equal* or *not equal* under given conditions. The only possible suppositions are expressed by the two directly contradictory propositions: The two lines are equal; the two lines are not equal. As there is no tenable supposition intermediate between these two extremes, all middle ground is excluded. We cannot, for instance, assume the middle position: the two lines are partly equal and partly unequal. The proof then proceeds to test the truth of the second proposition by deducing conclusions from it. It is found to lead to the conclusion, a part of a line is equal to the whole of that line, and this conclusion is known to be false. Hence we infer that the second pro-

position itself is false; for if the consequent be false, the antecedent must be false also. At this stage the argument may be thus summed up: There are two possible suppositions; one of these must be true and the other false; but the second supposition is shewn to be false, because it leads to a false conclusion. The final inference is then irresistible; the second supposition is false, therefore the first is true, for these two exhaust all possible assumptions.

In proposition 14, the question is whether BD coincides with CB produced. The contradictory propositions are: BD coincides with CB produced; and BD does not coincide with CB produced. The second proposition is false, for it leads to the false conclusion: the whole of an angle is equal to a part of that angle. Then, since the second proposition is false, its contradictory, the first proposition, must be true. The words "In the same way it may be demonstrated, etc.," which occur near the end of some of these proofs seem to be the source of the uncertainty that learners often feel after reading one of these indirect demonstrations in geometry. When the proof is rigidly stated these words appear to be superfluous, and calculated to produce only confusion of thought. It would be an improvement to state all these proofs in such a way as to avoid the use of the words "In the same way, etc," which leave a learner under the wrong impression that there is something further necessary before the conclusion inevitably follows from the demonstration.

In proposition 19 and one or two others there is a slight variation from the preceding form of the *reductio ad absurdum*, but it must be noticed that the assumptions are really dichotomous and not tripartite as at first they appear. Thus in the 19th the two contradictory propositions are, (1) AC is greater than AB, (2) AC is not greater than AB. Now (2) includes the two propositions (3) AC is equal to AB, and (4) AC is less than AB, and it includes no others. The demonstration shows that (3) and (4) both lead to conclusions known to be false, that is, it shows that (2) in all cases leads to false conclusions, and is therefore itself false. The inference then follows as before (1) is true because its contradictory is false.

It may be worth while to point out that when this form of proof is applied to questions of government, history, political economy, medicine, criminal law, etc., in which there may perhaps be a vast number of hypotheses possible, it is necessary to exercise extreme care to exhaust all possible assumptions. If we leave a single hypothesis under the second contradictory proposition not disproved, we cannot legitimately infer the truth of its contradictory, viz.: the first proposition. Hence if we are able to disprove only some of the assumptions under (2) we can arrive at a probability only and not at a certainty of the truth of (1). For example, a murder is perpetrated under circumstances which seem to show that it must have been committed by some one or more of these ten prisoners, and that it is not possible for anyone else to be guilty. The prosecution may then proceed to prove an *alibi* for nine of the prisoners, and thus bring home the crime to the tenth by eliminating piece by piece the assumption: the tenth man is not guilty. It is just at this point that circumstantial evidence often fails to convince the jury, by failing to convince them that the crime might not have been otherwise committed; or, having convinced them, turns out to have been insufficient by overlooking some hypothesis which afterwards proves to be the true one, *e.g.*: the deed was done by an eleventh man, not enumerated at the trial. In mathematics, however, there is usually no difficulty whatever in exhausting the whole possibility, so that not the least shadow of uncertainty hangs over the conclusion.

Mr. Potts remarks "that one of the most common intellectual mistakes of learners, is to imagine that the denial of a proposition is a legitimate ground for the assertion of the contrary as true; whereas the rules of sound reasoning allow that the affirmation of a proposition as true, affords a ground only for denial of the contrary as false." It is necessary to distinguish *contrary* from *contradictory* propositions. We shall conclude with an extract from Mr. Mill's chapter on fallacies, which will suitably complete our view of the indirect demonstration by showing the sophisms to which that kind of proof is liable, and will also illustrate and explain the preceding statement of Mr. Potts:—"I believe errors of this description to be far more frequently committed than is generally supposed, or than their extreme obviousness might seem to admit of. For example, the simple conversion of an universal affirmative proposition: All A are B, therefore all B are A, I take to be a very common form of error; though committed, like many other fallacies, oftener in the silence of thought than in express words. And so of another form of fallacy, not substantially different from the preceding; the erroneous conversion of an hypothetical proposition. The proper converse of an hypothetical proposition is this: If the consequent be true, the antecedent is false; but this: If the consequent be true the antecedent is true, by no means holds good, but is an error corresponding to the simple conversion of an universal affirmative. Yet hardly anything is more common than for people, in their private thoughts, to draw this inference. As when the conclusion is accepted, which it so often is, for the proof of the premises. Men continually think and express themselves as if they believed that the premises cannot be false if the conclusion is true. The truth, or supposed truth of the inferences which follow from a doctrine, often enables it to find acceptance in spite of gross absurdities in it. How many systems of philosophy, which had scarcely any intrinsic recommendation, have been received by thoughtful men because they were supposed to lend additional support to religion, morality, some favorite view of politics, or some other cherished persuasion? not merely because their wishes were thereby enlisted on that side, but because its leading to what they deemed sound conclusions appeared to them a strong presumption in favor of its truth: though the presumption when viewed in its true light, amounted only to the absence of that particular kind of evidence of falsehood, which would have resulted from its leading by correct inference to something already recognized as false.

Again the very frequent error in conduct of mistaking reverse of wrong for right, is the practical form of a logical error with respect to the Opposition of Propositions. It is committed for want of the habit of distinguishing the *contrary* of a proposition from the *contradictory* of it, and of attending to the logical canon, that contrary propositions, though they cannot both be true, may both be false. If the error were to express itself in words it would run distinctly counter to this canon. It generally, however, does not so express itself, and to compel it to do so is the most effectual method of detecting and exposing it."

HIGH SCHOOL ENTRANCE EXAMINATIONS.

SOLUTIONS.—ARITHMETIC.

1. Define *greatest common measure.* State the principle on which the rule for finding the G. C. M. of two numbers depends.

Find the G. C. M. of *sixty-eight million five hundred and ninety thousand one hundred and forty-two*, and *eighty-five million fifty-four thousand and fifty-nine.*

The G. C. M. of two or more numbers is their greatest common factor. Usually the name is restricted to *integral* factors. Every measure of two or more numbers will also measure the sum or the difference of any multiples of these numbers.

4	68590142	85054059	1
4	2734474	16463917	6
7	45155"	57073	1
10	52043	5030	2
1	1743	1544	7
1	199	151	3
	48	7	

Now 48 and 7 are prime to each other ∴ the given numbers have no G. C. M.

N. B.—We have used the combined method of multiplication and subtraction, see *Elementary Arithmetic* in previous number. The quotients are placed on the outside columns.

2. A dealer bought 8 carloads of lumber, each containing 9870 feet, at $13.50 per M. He retailed it at $1.43 per 100 feet. Find his gain on the whole lot.

$$\text{Gain per M.} = 14.30 - 13.50 = \cdot 80$$
$$\therefore \quad \text{" per ft.} = \tfrac{8}{1000} = \$\tfrac{8}{10000}$$
$$\text{Total gain} = 9870 \times 8 \times \tfrac{8}{10000} = \cdot 987 \times 8 \times 8 = \$63.16\tfrac{4}{5}.$$

3. Show that $\frac{3}{4} = \frac{6}{8}$, and that $\frac{2}{3} \div \frac{4}{5} = \frac{10}{12}$

Simplify the following:—

$$\frac{26\frac{3}{7} - 1\frac{13}{21}}{\frac{4}{9} + 1\frac{1}{3} - \frac{3}{5} \text{ of } \dfrac{17\frac{1}{2}}{12} \text{ of } \frac{5}{9} \div \frac{35}{24}} \text{ of } \frac{5\frac{1}{2}}{521}$$

Book-work. See June number of this JOURNAL.

$$N = 26\tfrac{9}{21} - 1\tfrac{13}{21} = 24\tfrac{17}{21} \times 63 = \frac{1512+51}{63+28} = \frac{1563}{91}$$
$$D = 1\tfrac{7}{9} - \tfrac{3}{5} \times \tfrac{35}{24} \times \tfrac{5}{9} \times \tfrac{24}{35} = \frac{1\frac{4}{9} \times 63}{} =$$
$$\therefore \text{ Exp.} = \frac{1563}{91} \times \frac{11}{2 \times 521} = \frac{33}{182}$$

4. Prove that $2 \cdot 3 \times \cdot 04 = \cdot 092$

Add together 154·2125, ·5421, ·0001235, 741·206, ·03 and 4567·0004.

Reduce 75·0125 cwt. to ounces.

$\frac{23}{10}\times\frac{4}{100}=\frac{92}{1000}$. Ans. $=5462\cdot9911245$.

Ounces $=7501\frac{1}{4}\times16=120020$.

5. A steamer makes a nautical mile (6072 feet) in 3 minutes and 50 secs. Find her rate per hour in statute (common) miles.

In $\frac{23}{6}$ min. goes 6072 ft.

∴ " 1 " " $6072\times\frac{6}{23}$ ft.

or " 1 hour " $(6072\times\frac{6}{23}\times60)\div5280$, miles $=18$.

6. There is a solid pile of bricks which is 36 ft. long, 16 ft. 6 in. wide, and 14 ft. 6 in. high, and contains 122496 bricks of uniform size; each brick is 9 in. long and $4\frac{1}{2}$ in. wide; find its thickness.

$122496\times\frac{9}{12}\times\frac{9}{24}\times\text{thickness}=36\times16\frac{1}{2}\times14\frac{1}{2}$

i. e. thickness $=\dfrac{36\times33\times29\times24\times12}{2\times2\times9\times9\times122496}=\frac{1}{4}$ ft. $=3$ inches.

7. A London merchant transmits £250 10s. through Paris to New York: if £1=24 francs, and 6 francs=$1.14, American currency, what sum in American currency will the merchant realize?

£1=24 francs=$1.14×4

∴ £250 10s. $=\$1.14\times4\times250\frac{1}{2}$

$=\$1.14\times1002=1140+2.28=\$1142.28$.

8. In a map of a country the scale is $\frac{1}{10}$ of an inch to a mile (*i.e.*, $\frac{1}{10}$ of an inch represents a mile), and a township is represented on this map by a square whose side is half an inch. How many acres in a township?

If $\frac{1}{10}$ represents 1 mile, and $\frac{5}{10}$ represents 5 miles=one side of square township.

∴ Number of acres $=5^2\times640=16000$.

9. If 4 men and 6 boys can do a piece of work in 8 days, how long will it take 8 men and 4 boys to do such a piece of work?

In 1 day 8 men + 4 boys do $\frac{1}{4}+\frac{1}{12}=\frac{1}{3}$ ∴ time=3 days.

10. A. and B. were candidates for election in a constituency of 2700 voters. The votes polled by A. were to the votes polled by B. as 23 to 25, and B. was elected by a majority of 100. How many persons did not vote?

In every 48 votes, 23 were for A., 25 for B.

∴ $(\frac{25}{48}-\frac{23}{48})$ total votes given $=100=\frac{1}{24}$ total votes given.

∴ total votes cast=2400. Ans. 300.

VICTORIA COLLEGE—MATRICULATION.

ALGEBRA—HONORS.

J. A. MCLELLAN, LL.D., EXAMINER.

1. With respect to what quantities is $a^3-b^3-c^3-3abc$ symmetrical? *Ans.* $+a,-b,-c$.

Write down the function of a, b, c, d which is symmetrical with $a^3+b^3+c^3-3abc$ and its quotient when divided by $a+b+c+d$.

(*a*) In given expression we have the sum of the cubes—three times the products of a, b and c taken three and three together; therefore the function of a, b, c, d is $(a^3+b^3+c^3+d^3)-3(abc+abd+acd+bcd)$.

(*b*) $(a^3+b^2+c^3-3abc)\div(a+b+c)=a^2+b^2+c^2-ab-bc-ca$ therefore by symmetry the function of a, b, c, d is $a^2+b^2+c^2+d^2-ab-bc-cd-da-ac-bd$.

2. Shew that $(x+y+z)^7-(x^7+y^7+z^7)$ is exactly divisible by $(x+y+z)^3-(x^3+y^3+z^3)$; and find the values of a and b which make $x^4+2x^3-10x^2-ax+b$ vanish when $x^2=3(x-1)$.

(*a*) We see by inspection that both expressions vanish when $(x+y)$, $(y+z)$, or $(z+x)$ vanishes. Hence each expression is divisible by $(x+y)(y+z)(z+x)$. Now the second expression can have no other literal factors, for it is of only three dimensions, and must therefore $=$ N $(x+y)(y+z)(z+x)$, where N is some numerical factor. Thus 2nd expression contains 1st.

(*b*) If $x^2=3(x-1)$, $x^2-3x+3=0$; and if this be a factor of x^4+2x^3, &c., the latter will vanish. Hence divide the latter by x^2-3x+3. Using Horner's method, and detached coeffts.:

$$\begin{array}{r|l|l}
1 & 1+2-10 & -a+b \\
+3 & \quad +3-3 & -15-6 \\
-3 & \qquad\quad +15 & +6 \\
\hline
 & 1+5+2 &
\end{array}$$

Now in order that x^2-3x+3 may be an exact factor the last two columns must separately vanish, *i. e.*, a must $=-9$ and $b=6$.

3. Find the simplest form of—

$$\frac{\sqrt{a^2+x^2}+\sqrt{a^2-x^2}}{\sqrt{a^2+x^2}-\sqrt{a^2-x^2}}-\left\{\frac{a^4}{x^4}-1\right\}^{\frac{1}{2}}$$

and examine the following reasoning, viz.:

$$(-1)^{\frac{1}{2}}=(-1)^{\frac{2}{4}}=\left\{(-1)^2\right\}^{\frac{1}{4}}=(+1)^{\frac{1}{4}}=+1$$

(*a*) Rationalising and reducing we have

$$\frac{a^2+\sqrt{a^4-x^4}}{x^2}-\frac{\sqrt{a^4-x^4}}{x^2}=\frac{a^2}{x^2}$$

(*b*) This involves a fallacy. $(+1)^{\frac{1}{4}}$ has four values, for if $x=(+1)^{\frac{1}{4}}$, $x^4=1$, *i. e.* $(x^2+1)(x+1)(x-1)=0$

∴ $x=1,-1,\pm\sqrt{-1}$. And the fallacy consists in selecting the wrong root. If we take the last root with the lower sign the statement will be perfectly correct.

4. If $\frac{a}{b}=\frac{c}{d}$, show that $\sqrt{\frac{a^{2n}+b^{2n}}{c^{2n}+d^{2n}}}=\left(\frac{a-b}{c-d}\right)^n$.

The usual method, putting $\frac{a}{b}=\frac{c}{d}=x$, &c., gives an easy solution. It is far better practice, however, for the student to solve all such questions *constructively*.

$\frac{a^{2n}}{b^{2n}}=\frac{c^{2n}}{d^{2n}}$ ∴ $\frac{a^{2n}+b^{2n}}{b^{2n}}=\frac{c^{2n}+d^{2n}}{d^{2n}}$ by adding 1 to each side.

∴ $\sqrt{\frac{a^{2n}+b^{2n}}{c^{2n}+d^{2n}}}=\frac{b^n}{d^n}$. Similarly $\left(\frac{a-b}{c-d}\right)^n$ may be shewn $=\frac{b^n}{d^n}$.

5. I invest $\$p$ in the m % stock when the stock is at $\$a$, and $\$q$ in the n % stock when it is at $\$b$. What percentage do I get on my whole capital $\$(p+q)$?

In 1st stock p buys $100p\div a$, on which income $=mp\div a$.

In 2nd stock q " $100q\div b$, " " $=nq\div b$;

or whole income $=\frac{mp}{a}+\frac{nq}{b}$ on $(p+q)$.

∴ income on $\$100=\dfrac{100(bmp+anq)}{ab(p+q)}$.

6. Define a root. What is the difference between the equation $(x-3y)(x-4y+5)=0$ and the simultaneous equations $x-3y=0$ and $x-4y+5=0$? Solve the equation $(2a-b-x)^2+9(a-b)^2=(a+b-2x)^2$.

(*a*) The root is that quantity which when substituted in the given equation for the unknown quantity reduces the equation to the form $0=0$, if all the terms are brought to one side of the equation.

(*b*) The first equation is of the second degree, each of the simultaneous equations is of the first degree.

(*c*) Expanding and arranging in powers of x we get

$$x^2-2bx-(4a^2-8ab+3b^2)=0$$

$$\text{or } x^2-2bx-(2a-b)(2a-3b)=0$$

$$i.\ e.,\ \{x-(2a-b)\}\{x+(2a-3b)\}=0$$

∴ $x=2a-b$ or $3b-2a$.

7. Show how to find n arithmetic means between a and b. Find the relation between a and b in order that the rth mean between a and $2b$, may be the rth mean between $2a$ and b, n means being inserted in each case.

(*a*) Whole series has $n+2$ terms,

∴ com. diff'ce $=\frac{b-a}{n+1}$ &c., book-work.

and the nth mean $=\frac{a+nb}{n+1}$

(*b*) r^{th} mean $=\frac{a+2rb}{n+1}=\frac{2a+rb}{n+1}$ respectively.

Or $a=rb$.

8. Solve (1) $x^2-yz=1$, $y^2-zx=2$, $z^2-xy=3$

(2) $\sqrt[3]{\frac{a-x}{b+x}}+\sqrt[3]{\frac{b+x}{a-x}}=c$

(3) $y^2z=2\sqrt{3}$, $z^2x=3$, $x^2y=\sqrt{2}$.

(1) Add and $x^2+y^2+z^2-xy-yz-zx=6$. (A).

Multiply 1st by x, 2nd by y, 3rd by z, add, factor, substitute from (A) and $(x+y+z)$ $6=x+2y+3z=0$

or $5x+4y+3z=0$. (B).

Again, multiply 1st by y, 2nd by z, 3rd by x, and add

and $3x+y+2z=0$. (C).

Combine B and C and $z=7y$. Substitute this value of z in 1st

and 2nd and combine, and $x=-5y$. Substitute for x and z in 2nd and $y=\pm\frac{1}{6}\sqrt{2}$.

$$\therefore x=\pm\tfrac{5}{6}\sqrt{2}, \text{ and } z=\pm\tfrac{7}{6}\sqrt{2}.$$

(2) Cube, and substitute c from the given equation,

$$\frac{a-x}{b+x}+\frac{b+x}{a-x}+3c\left[\frac{(a-x)\ (b+x)}{(b+x)\ (a-x)}\right]^{\frac{1}{3}}=c^3$$

$$\frac{a-x}{b+x}+\frac{b+x}{a-x}=c^3-3c.$$

Put $a-x=m$, $b+x=n$

$$\therefore \frac{m^2+n^2}{2mn}=\frac{c^3-3c}{2}$$

$$\therefore \frac{m+n}{m-n}=\left(\frac{c^3-3c+2}{c^3-3c+2}\right)^{\frac{1}{2}}=\pm k, \text{ suppose.}$$

$$\therefore \frac{m}{n}=\frac{k+1}{k-1}=\frac{a-x}{b+x}$$

$$\therefore \frac{a-x}{a+b}=\frac{k+1}{2k} \quad \therefore x=a-\frac{(a+b)(k+1)}{2k}$$

N. B.—We had $3c(1)^{\frac{1}{3}}$, for which we wrote $3c(1)$. But there are two other values for $(1)^{\frac{1}{3}}$ which will each give other solutions.

(3) Multiply all the equations together and take the cube root and $x\,y\,z\,\sqrt[6]{6^3}$. Substitute in this for y and z from equations two and three, and we have after reduction $\sqrt{6}\div\sqrt{x}=\sqrt[6]{6^3}$ $\therefore x=1$, $y=\sqrt{2}$, $z=\sqrt{3}$. Other values will be found by attending to the double signs.

9. If x_r represent the number of combinations of x things taken r in a set, prove that

(1) $x_r=x_{x-r}$

(2) $x_r+x_{r-1}\,y_1+x_{r-2}\,y_2+\ldots+x_1\,y_{r-1}+y_r=(x+y)_r$

(1) Whenever we remove a set of r out of the x things we leave a set of $x-r$. Hence there will be as many sets of $x-r$ as there are sets of r things.

(2) By the notation assumed

$$x_1=x \qquad x_1=x$$

$$x_2=\frac{x(x-1)}{1.2.}, \qquad \therefore 2x_2=(x-1)x.$$

$$x_3=\frac{x(x-1)(x-2)}{1.2.3.}, \qquad \therefore 3x_3=(x-2)x_2.$$

$$\&c.=\&c. \qquad \therefore \&c.=\&c.$$

$$x_r=\frac{x(x-1)(x-2)..(x-r+1)}{1.2.3\ldots\ldots r}, \quad \therefore rx_r=(x-r+1)x_{r-1}$$

Similarly, we have $y_1=y$, $2y_2=(y-1)y$, $3y_3=(y-2)y_2$ &c., and $ry_r=(y-r+1)\,y_{r-1}$

Now take the product of the two following series by actual multiplication thus,

$$1+x_1K+x_2K^2+x_3K^3+\ldots\ldots x_rK^r+\ldots.$$
$$1+y_1K+y_2K^2+y_3K^3+\ldots\ldots y_rK^r$$

$1+C_1K+C_2K^2+C_3K^3+\ldots\ldots C_rK^r$, suppose; in which

$C_1=x_1+y_1=x+y$;

$C_2=x_2+x_1y_1+y_2$; $C_3=x_3+x_2y_1+xy_2+y_3$ &c, and

$C_r=x_r+x_{r-1}y_1+x_{r-2}y_2+$ &c. $x_1y_{r-1}+y_r$. Multiplying,

$rC_r=rx_r+\{1+(r-1)\}x_{r-1}y_1+\{2+(r-2)\}x_{r-2}y_2+$ &c. $+ry_r$.

$$\left.\begin{array}{l}=rx_r+(r-1)x_{r-1}y_1+(r-2)x_{r-2}y_2+\&c.\ldots\ldots\ldots\ldots+x_1y_{r-1}\\ +x_{r-1}y_1+2x_{r-2}y_2+3x_{r-3}y_3+\&c.\ldots\ldots\ldots\ldots\ldots\ldots+ry_r.\end{array}\right\}$$

$$\left.\begin{array}{l}=(x-r+1)x_{r-1}+(x-r+2)x_{r-2}y_1+(x-r+3)x_{r-3}y_2+\&c.+xy_{r-1}\\ +y\,x_{r-1}+(y-1)\,x_{r-2}y_1+(y-2)x_{r-3}y_2+\&c.+(y-r+1)y_{r-1}.\end{array}\right\}$$

$$=(x+y-r+1)x_{r-1}+(x+y-r+1)x_{r-2}y_1+(x+y-r+1)x_{r-3}y_2+\&c.$$
$$(x+y-r+1)y_{r-1}.$$

$=(x+y-r+1)(x_{r-1}+x_{r-2}y+x_{r-3}y_2+\&c.+y_{r-1})$.

$=(x+y-r+1)C_{r-1}$. Thus we have by giving r successive values,

$$C_1=(x+y).$$
$$2C_2=(x+y-1)C_1.$$
$$3C_3=(x+y-2)C_2.$$
$$\&c.= \quad \&c.$$

$rC_r=(x+y-r+1)C_{r-1}$. Multiply up and cancel, and

$$1.2.3\ldots rC_r=(x+y)(x+y-1)\ldots\ldots(x+y-r+1).$$

i. e. $C_r=\dfrac{(x+y)(x+y-1)\ldots\ldots(x+y-r+1)}{1.2.3\ldots\ldots r}$

$=(x+y)_r$, which is the theorem enunciated in the question.

10. Sum the series $2+6x+12x^2+20x^3+\ldots\ldots$ *ad. inf.*

Let $S=1+3x+6x^2+10x^3+\ldots\ldots\ldots\ldots$

$$\therefore S(1-x)=1+2x+3x^2+4x^3+\ldots\ldots\ldots$$

and $S(1-x)^2=1+x+x^2+x^3+\ldots.=\dfrac{1}{1-x}$.

i. e., series $=2S=\dfrac{2}{(1-x)^3}$, which may easily be verified by synthetic division.

11. Prove that the sum of the products of the first n natural numbers taken two and two together is $\frac{1}{12}\,n(n^2-1)(3n+2)$.

In the expansion of $(a+b+c+\&c.)^2$, the sum of the double products=twice the sum of the products of a, b, c, &c., taken two and two together; considering a^2, b^2, c^2, &c., as not double products.

Now $(1+2+3+4+\&c.+n)^2=(n+1)^2\,\dfrac{n^2}{4}$.

$$=(1^2+2^2+3^2+\ldots\ldots\ldots+n^2)+2(1.2+1.3+\&c.)$$

$$\therefore \tfrac{1}{6}n(n+1)(2n+1)+2(1.2+1.3+\&c.)=(n+1)^2\frac{n^2}{4}$$

i. e. $(1.2+1.3+\&c.)=(n+1)^2\dfrac{n^2}{8}-\frac{1}{12}n(n+1)(2n+1)$.

$$=n(n+1)\{\tfrac{1}{8}n(n+1)-\tfrac{1}{12}(2n+1)\}.$$

$=\frac{1}{24}n(n^2-1)(3n+2)$, as required, for the $\frac{1}{12}$ is evidently a misprint for $\frac{1}{24}$, and the latter is easily verified by giving n successive values.

12. Show that the coefficient of x^n in the expansion of $(1-x)^{-n}$ is equal to the sum of all the preceeding coefficients. Find three terms of the expansion of $\left(\dfrac{1+x^n}{1-x^{2n}}\right)^{\frac{1}{3}}$.

(1)

$$(1-x)^{-n}=1+nx+\frac{n(n+1)}{1.2.}x^2+\ldots\ldots\frac{n(n+1)\ldots\ldots(2n-1)}{1.2\ldots\ldots\ldots n}x^n+\&c.$$

$$(1-x)^{-1}=1+x+x^2+\ldots\ldots \qquad +\&c.$$

$\therefore (1+n)^{-(n+1)}$=product of the two series.

Now the coefficient of x^{n-1} on each side must be the same.

$\therefore 1+n+\dfrac{n(n+1)}{1.2}+\ldots\ldots\dfrac{n(n+1)\ldots\ldots\ldots(2n-2)}{1.2.3\ldots\ldots(n-1)}$ in the product.

$=\dfrac{(n+1)(n+2)\ldots\ldots(2n-1)}{1.2.3\ldots\ldots(n-1)}$ in the expansion

$=\dfrac{n(n+1)(n+2)\ldots\ldots(2n-1)}{1.2.3\ldots\ldots n}$ which is the coefficient of x^n in the expansion of $(1-x)^{-n}$.

(2)

$$\left(\frac{1+x^n}{1-x^{2n}}\right)^{\frac{1}{3}}=(1-x^n)^{-\frac{1}{3}}=1+\tfrac{1}{3}x^n+\frac{1.4}{1.2.9}x^{2n}+\frac{1.4.7}{1.2.3.27}x^{3n}$$
$$=1+\tfrac{1}{3}x^n+\tfrac{2}{9}x^{2n}+\tfrac{14}{81}x^{3n}.$$

Special Articles.

ENGLISH TEXTS FOR SCHOOL USE.

BY A STUDENT OF ENGLISH LITERATURE.

The threatened withdrawal of "Marmion" from the high school programme has turned public opinion to an important aspect of educational work. Availing myself of the interest thus aroused I would like to add my humble contribution to the discussion which has not yet entirely died out.

I believe heartily in the policy of studying English literature by means of texts, and I believe just as heartily in the value of such a course of study as a branch of education. A poem by Gray, Cowper, Wordsworth, or Tennyson is just as valuable as one by Horace, Virgil, Ovid, or Homer, as a means of expanding the ideas and training the mental powers of the pupil. The English language is just as perfect in its way as either Latin or Greek, and English poetry is just as noble a production as either of its more ancient rivals.

Fortunately it is not now necessary to fortify such a position by arguments. In Canada as well as in England the disgrace of being chargeable with neglect of our own language and literature is being rapidly wiped out. The past five years have witnessed a

change which amounts to a revolution. What is wanted now is not so much impulse as proper direction. It is of the utmost importance that the texts chosen should be the best available, and it is to the question of selection that I propose briefly to address myself.

The work of selection for high schools has, by a kind of accidental arrangement, been performed for some years past by the Senate of the University of Toronto. It is a good thing for the high schools to have the same works in English prescribed for university and intermediate work, and therefore the arrangement referred to is a useful one, but the work of selection is not easy and the Senate has certainly not made the best possible choice for this year. I have no hesitation in saying that neither "Marmion" nor Burke's "Reflections" should have been put on the list, and of the two the "Reflections" is the more objectionable.

A moment's consideration will show the correctness of this view. Taking the "Reflections" first I remark, in the first place, that Burke's style is utterly unsuited for juvenile perusal. I am not going to question his intellectual and rhetorical preëminence or dispute his title to a high position amongst the master minds of all the ages. But that very title is my chief reason for objecting to him. Who would think of prescribing a play of Shakespeare or a book of "Paradise Lost" for the intermediate examination? And yet either of them would be quite as suitable as anything Burke ever said or wrote. But even if his style were suitable the matter of the "Reflections" is not. When he wrote that celebrated pamphlet he was in a morbid frame of mind, and every page of it shows that he was so. It made him the idol of the Court and of the reactionary "Jingos" of his own day, but it inculcates an utterly erroneous and unphilosophical view of one of the great events of history. Why should young Canadians be taught that the French Revolution was a huge crime and nothing more, when they see a French Republic in successful operation in their own day as its result? What sympathy have free people in America with either misgoverning Bourbons or a licentious and blood-sucking aristocracy? It is well known that Fox and other political associates of Burke did in his own day take a sounder and more philosophical view of the Revolution than he did; but he was unable, like them, to separate the temporary and accidental concomitants of the movement from its permanent and beneficent characteristics, and because they would not join in his angry and undiscriminating crusade he cut them off from his friendship. And when we have the whole list of British essayists to select from why have such a pamphlet as Burke's "Reflections" stuck into the hands of our boys and girls!

"Marmion" is, as I have already said, less open to reasonable objection. I take no stock whatever in the charge of immorality recently levelled against it. Those who condemn it as immoral either have never read it or are afflicted with pruriency of a most pronounced type. There is some force—but not much—in the objection that it is in some passages offensive to Roman Catholics. Those who feel offended at it on this score are over sensitive, for Scott only makes use, as a poet, of certain local traditions, and he does so without intending the slightest disrespect to the Roman Catholic church. As well might Puritans and Cameronians object to "Old Mortality," or "The Heart of Mid-Lothian," or to Macaulay's "Marston Moor," or Praed's "Naseby." When will people learn that a poem like "Marmion" is a work of art and not a polemical effusion?

My main objection to "Marmion" is that we have already had enough of Scott. The "Lady of the Lake" has been i our hands for four years and it was surely some other poet's turn. Good as Scots's poetry is there is other poetry of the nineteenth century quite as good, and some of it should have been selected instead of "Marmion." Why not take such a piece as Wordsworth's "Hart-Leap Well" for instance, or his "Resolution and Independence," or his "Ode on the Intimations of Immortality?" Then we have plenty of room to select from Keats, Tennyson, Shelley, or Byron without taking anything objectionable; and why exclude Longfellow and the other American poets, to say nothing of Washington Irving and other writers of essays and sketches? Or, if a Scottish poet must be selected why not try a piece from Burns? Surely something could be culled from Moore worth a careful reading, unless his nationality be an objection.

I hope to see a little more care in the selection of texts for future years, but meanwhile it is absurd to think of totally withdrawing "Marmion" from this year's programme. My own and other objections are too late after the books are in the hands of the pupils and students.

THE BEARINGS OF PSYCHOLOGY ON EDUCATION.*

The functions of intellect may be included under the three heads, —mental comparison, generalization, and retentiveness.

I. Mental Comparison.—This is the function by which we recognize differences and discover agreements. The like and the unlike are revealed by the same faculty. Consciousness of difference is the beginning of every intellectual exercise. To experience a new impression is to recognize change, and a present experience is recognized as different from or similar to a foregoing, by the faculty which the mind possesses of contrasting and comparing our experiences. The young child cries when the accustomed light is removed from the room, because it has experienced a change of feeling; if the fire in our room is allowed to go out, we are awakened to the fact by a change of feeling. Consciousness of change, then, or discrimination is the starting point of intellect; and further, our intelligence is absolutely limited by our power of discrimination. The recognition of difference must precede memory, as it furnishes material for the retentive faculty. I do not believe that what is known as the development theory of the origin of knowledge is a true one. That theory begins with sensation, which it regards as the simplest state of consciousness, and it makes all the more complex states of consciousness merely developments from this primary state. The adherents of this theory identify sensation and consciousness, and this position I believe to be untenable. Sensation is not consciousness. If we had but a sensuous nature, sensations, as we experience them, would be impossible. We know sensations in contrast. We are conscious of sensations related to one another. This particular sensation is known as distinct from that other. We compare, we contrast, we know the sensations as bearing a certain relation to one another. Now it seems evident that this knowledge is not furnished by sense. Surely the apprehension of relations involves a super-sensuous element. In fact the simplest experience is only possible on the supposition of a higher faculty of mind than sense, viz., the understanding.

Notwithstanding this, it is true, as Prof. Bain puts it, that "the blank of sensation is a blank of memory." Sense furnishes the material of knowledge, and if nothing be felt, of course nothing can be remembered. It is further true that the number and variety of our stored-up recollections depend on the exactness and delicacy of our recognition of differences. The power of discrimination is not alike in all persons, and this in a great measure accounts for disparity in intellectual character, and variety in likings and pursuits, and it is of importance to note this native inequality in order to predestine the child to a particular profession or calling; but this

* Abridged from a paper read by James McMurchie, M.A., before the teachers' association of North Wellington.

does not fall within the province of the teacher. It is for him to note the ways and means of quickening and strengthening the power of discrimination. Our intelligence being absolutely limited by our power of detecting differences, the teacher is bound to consider what helps and what hinders the exercise of this fundamental function. The following are some of the conditions favorable to the exercise of the faculty of comparison :—

1. *Mental Watchfulness.* This in fact is a condition of every intellectual function. In a languid, drowsy state, differences cannot be recognized, and it is proper for the teacher to employ any legitimate artifices that will arouse the pupil's mental activities from a state of indolence.

2. The energies must be directed in the right channel. There should be no waste of the mental powers from their being misapplied. There is a well recognized antithesis between the emotional and intellectual activities, which should never be lost sight of; strong emotional excitement is inconsistent with great intellectual energy ; when emotion reigns, intelligence becomes its feeble slave. It is in our calmer state of mind that comparison or any other power of intellect works to advantage.

3. Some interest must attach to the difference or agreement to be recognized. It must be the reverse of insipid and uninviting that the mind may become alive to it, that a mental affection may be aroused.

4. Immediate succession or juxtaposition is a great aid to the discovery and retention of a difference or an agreement. When the transition is sudden, and the mind is not occupied with anything else in the meantime, so much the better for the detection. Magnitude, for example, is an affair of simple juxtaposition.

II. Generalization.—We find similarity in the midst of diversity, we detect like in the midst of the unlike; but there is a higher intellectual exercise than this. We find that several things agree in some particular. For example, if we stand near the fire we experience a certain sensation ; if we place ourselves under the direct influence of the sun's rays we experience a similar sensation ; if we lay our hand on the fevered brow, or subject a portion of the body to friction, a similar sensation occurs. Now the mind takes hold of these points of similarity (taking no account of the diversity of the circumstances in which the sensations occur), and unites them into one general idea, the name for such an idea being a general term. Half of our knowledge, and that the most difficult half, is obtained in this way. The child can compare and contrast before it possesses in any measure the power of generalization. The presence of the individual differences obscures the agreement and renders the discovery difficult.

Cumulation of the instances is of great use in driving home a generality. The oftener the point of agreement can be repeated, the more the instances can be multiplied, the greater becomes the certainty that an adequate idea of a general truth will be produced. In generalization the interest belonging specially to the individual examples is constantly competing for and obtaining a share of the attention, and seduction from this quarter must be guarded against.

The emotions should be calm and undisturbed, as it is only then that the higher intellectual exercises are possible. The learning of what is absolutely new is a difficult exercise; it makes heavy demands on the plastic power of the mind, and as it involves a heavy expenditure, it requires time. There is, however, great similarity in nature and in art; if we learn all about one plant, for example, we can more easily learn all about all others of the same class. If we are thoroughly versed in the French language, we can more easily master the Italian.

With every increase of knowledge we make an inroad into what is new and lessen its territory, so that a great deal of what we learn is the old in a new form, and the adhesive faculty has not to be drawn on to such an extent as at the beginning. Now it is a very useful and stimulating device of the teacher to make his pupils see the old in the new, to help them to recognize an old friend in a new dress.

III. Retentiveness.—All mental acquirement, all increase of knowledge, is due to the fact that we are endowed with a retentive faculty. Every cognition has a certain permanence, and it can be repeated in idea, in other words, it can be remembered. Repetition and time are required to give an impression permanence. Constant reviewing is needed in all, but especially in junior classes. If one teacher can root an impression in the minds of his pupils by fewer repetitions than another, he is a better teacher. He is economizing in a very important department, viz., in the plastic power of the system.

One of the conditions favorable to the development of that power is good health. The system must be properly nourished, and the brain should receive its fair share of nutrition. It is said that there is a greater expenditure of brain force in rooting lasting impressions than in any other mental exercise. It is certain that the storing of the memory makes very high demands on brain energy, and consequently it must not be too long continued. The severity of the exercise is the reason for not prolonging it. We can go only a certain distance with any profit. There are times when we are utterly incapable of receiving lasting impressions, and yet the mind may have a fair share of reserve force. Although incapable of acquiring what is absolutely new, it may be capable of applying known principles to new cases, e. g., solving new problems. Reading from a book, noting and arranging new facts, may be done with a very small degree of brain force. The energy of the system is at its height in the early part of the day, and declines as the day advances. What is altogether new should be undertaken in the morning, the lighter tasks being left for the afternoon, and constructive and mere routine exercises for the evening. These considerations have a direct bearing on the formation of a time-table. The principle of alternation of studies, which will be mentioned again, should also have due weight when we draw up our time-table.

This development requires concentration. This word, in fact, sums up all the mental aids to retentiveness. Every new impression stamped on the memory involves, as we have already said, a certain expenditure of mental power, and the more the power expended the more ineffaceable is the impression. How necessary then that there should be no misapplication of power, no mental waste. The subject before us should receive all our attention. We should allow no rivals in the field. It being granted that our powers should be turned into the proper channel and kept there, the inquiry arises, what is the agent to be used for this purpose? and the further inquiry, how does this agent act? I answer (1) the agent to be used is the will; and (2), the will acts from motives. The chief motives which influence the will are pleasure and pain.

The most powerful motive to concentration is pleasure *in esse*—pleasure in the act itself. When the exercise is productive of pleasure, the will consents to the employment of all our mental force. Immediate pleasure is the feast enjoyed, and for the sake of prolonging this delightful feast, there is concentration of the mental powers on the proper object. Pleasure assists the memory also; an impression, when accompanied by pleasure, is more enduring; but the pleasure must not be intense, for it then becomes a disturbing element. A gentle and growing pleasure is the most favorable. Even should there be pain at first, and it should gradually pass into pleasure, the condition is not unfavorable to concentration.

Pleasure *in posse*—probable pleasure—is an inferior motive to actual pleasure. If there is a strong probability of pleasure to be soon experienced, the will may be exercised to a considerable degree, but if the prospect of pleasure is far distant the influence is generally slight.

Pain, instead of attracting, repels us. How then does it act as a motive? When pain ensues on neglect of or departure from the prescribed task, we find pleasure by sticking to it. On this principle we punish our pupils for want of application. Pain, as a motive, is inferior to pleasure, and should only be employed when other motives will not operate. Pain in any degree is a waste of brain power, and when it passes into dread or terror a great evil is inflicted. The teacher who is for ever scolding and pestering his pupils has much to answer for. To demand some difficult task of a timid child, and, at the same time to frighten it with a threatened penalty, is to demand an impossibility, and the teacher has made it an impossibility. To set a task with the penalty of corporal punishment in case of failure attached, is, first, to incapacitate the child, and next, to punish the child because you have succeeded in incapacitating it. Perhaps the use of the tawse might be justified under such circumstances, but certainly not if applied to the child.

There are cases, however, in which the teacher must resort to pain. We sometimes find that a pupil considers he has mastered a subject, when the fact is, he has only a very elementary knowledge of it. What must the teacher then do but take some of the conceit out of him—always a painful operation to submit to. The pupil must be puzzled that his eyes may be opened to his ignorance. But the end should be such as to justify the means. We should resort to heroic remedies only when milder ones will not meet the case.

When all the mental powers are for a time absorbed on an object or exercise, an expenditure of brain energy is taking place, and, after a time, there must be an intermission. The maximum of mental energy cannot be long maintained. In view of this fact, is it a wise provision of our school law, which makes the time of teaching between five and six hours a day? I think that for young pupils, at any rate, the time is too long. The younger pupils in our public schools do no more work than, perhaps not as much as, they could do in half the time, with frequent intermissions of work and play. The young mind is incapable of continuous concentrated application for an hour and a half at a stretch, and it is folly to pretend to exact it. Let any teacher observe how little of their time the minds of his pupils are wholly absorbed in their tasks, and how much of it, so far as acquisition is concerned, is practically wasted; and I believe he will become an adherent of the view here expressed. Unsettled, desultory work is not very productive, and we are sure to have a good deal of such work so long as our working hours remain as at present.

Relief may be given to the mind by a judicious alternation of studies. No study is so many-sided as to make equal demands on all our energies. It is a relief to pass from exercises which are entirely new and strange, to others already familiar, but, which require additional practice, in order to engrain them on the memory. Transition from the abstract to the concrete also affords relief. The whole attitude of the mind is different when engaged on arithmetical problems from its attitude when engaged in a reading or writing exercise. The change from language to a constructive exercise, such as drawing, would be an effective one for rest.

It has been already stated that pleasure in the work is the chief attracting motive to concentration. How then can the teacher get his pupils to love their work? In the first place, the teacher must love the work himself; this implies a thorough mastery of the work. Enthusiasm begets enthusiasm; if the teacher be thoroughly earnest and enthusiastic, provided always that he possesses tact and good judgment, his pupils will not long remain uninterested. The teacher can also create an interest on the part of his pupils by telling them enough to awaken their curiosity. When the wonder of a child is aroused good results are likely to follow: the object of his curiosity will probably be examined.

Again the teacher must not give too much, and must not go too fast—must never give an overdose and must give time to digest.

Further, the teacher may lay before the child certain facts pointing to a conclusion, and allow the child to draw the conclusion. The pupil by doing this himself, instead of having it done for him, gains a sense of his own power—always a pleasurable feeling. In this way, too, personal independence is fostered.

Judicious praise on the part of the teacher may give encouragement and may stimulate to further exertion; but the teacher must be judicious in his bestowal. He must guard against ministering to the child's vanity, as well as against arousing the jealousy of his class-mates.

SOCIABILITY.*

One of the conditions of our happiness, almost of our existence, in this world is congenial society. No more dreadful punishment has ever been inflicted upon criminals than solitary confinement. No man, however wicked or hardened he may be, can long bear to be shut out from the sound of the human voice, the touch of the human hand or the sight of the human face. Experience has taught many a prisoner that the harshest tones, the most forbidding countenance and even blows or stripes are preferable to complete, enforced solitude.

There have been in former days, and in rare instances there are still, some who have voluntarily renounced the society of their fellows and devoted themselves to communion with Nature and Nature's Author. To them the flowers and the trees, the birds and beasts, the waving corn and the scented hay, the freshness and life of early morning, and the dewy stillness of the evening, the howling tempest and the cooling breeze supplied the place of the love and companionship of wife, brother, sister and friend. They were therefore free to devote themselves to study, to meditation and to devotion.

At first thought one would imagine that circumstances would be singularly favourable to these recluses, that being freed from the toils and cares, the annoyances and interruptions as well as the temptations and passions of active life they would accomplish much work and obtain such communion with the unseen as is denied to those whose ears are always filled with the jarring noises of a troubled world. And yet we do not read that these hermits were among the great benefactors of our race. They, no doubt, had their work to do, and they did it faithfully and self-denyingly. But it was not the *greatest* work. They were rather copiers or preservers of what had been done by others than creators themselves.

All the great teachers of mankind have been those who shared in the struggles, the cares, the joys and sorrows of those of their generation. Many a time it has seemed to them that the stress and turmoil and trouble around and within them had robbed them of their inspiration, but made the stronger by that very discipline they have returned to their work with new vigor and have succeeded the better for the struggle.

Do you want instances? Take that of Him who sitting on the Mount of Olives, sharing the labors of the fisherman of Galilee, surrounded by the hungry multitude in the desert, in the temple,

* Abridged from a paper read before the Charlottetown Teachers' Institute by Miss Maria Lawson.

on the streets, at the cottage of the sisters, at the supper table of the Pharisee, wherever in short he could get a human ear to listen to him, or a human heart to sympathize with him, taught those lessons which it takes the world so long to learn but which it is infinitely better for having even attempted to learn. He shrank from no pain, refused to share no sorrow, held himself aloof from no society, despised no pleasure which would enable him better to understand, nay, to make his own, the very "thoughts and intents" of the hearts of those whom he came to teach and to save.

It was in busy London amid the conflicts and the controversies of a civil war that Milton derived the inspiration of Paradise Lost and it was after having endured the greatest of bodily afflictions that he, assisted and comforted by his daughters, brought his great work to a successful conclusion. Shakespeare, our greatest English teacher, did his work in the midst of the intrigues, the ambitions, the heartburnings and revelries of the court, or surrounded by the laughter and bustle of a playhouse. Who will say that the poems of Wordsworth, Burns, or Goldsmith, are any the less sweet for having been admired by wife or friends, or that the works of the sage of Chelsea are the less wise and noble because he was cheered by the ministrations of one of the best of women. Dickens, Scott, or George Eliot could never have taught as they did, if, with genial hearts and large sympathies, they had not been able first to know themselves and then to picture to others the lives of those, some of them very homely, and, but for the light thrown around them by their genius, very unattractive, with which their love for their fellows brought them in contact.

All the great reforms have been brought about by men or women who have first mingled with those who suffered from the abuses and by the wondrous power of sympathy shared their sufferings and then with all the zeal and earnestness of their nature forced those with whom they came in contact to share that sympathy and to so feel the evils they complained of that they would no longer suffer them to exist. But such work requires very strong and deep sympathy. It is in no shallow nature that the germ must be planted which is to spring up and grow into a great tree laden with blessings for mankind. He who would rouse the majority of men from the lethargic sleep of selfishness must moreover be able intuitively to discern in what way he can best bring them into sympathy with the sufferers whom he desires to benefit. In one word he must be sociable. Without this quality even the patient perseverance of a Wilberforce would not have accomplished its end or the zeal of a Howard aroused the sympathies of England for the sufferings of the perhaps most unattractive class of human beings. Our greatest inventors and scientists have most of them been men who have taken part in the active duties of life and who have communicated to their associates such of the great truths they had discovered as they were able to comprehend. Those of them who have devoted themselves entirely to the pursuit of their object to the exclusion of human love and companionship have paid the penalty in many instances by the ruin of the brain they had overtaxed.

If then society be necessary for the great ones of the world how much more is it needed by those of less exalted aims and of more modest abilities. If they with their lofty aims and absorbing interests find it impossible to live alone how much less can we who are of more common mould do without sympathy and companionship. We lose much of the sweetness of life by wrapping ourselves up in a cloak of reserve.

A SCHOLAR.

"Yes, I am five years old to-day !
Last week I put my dolls away ;
For it was time, I'm sure you'll say,
For one so old to go
To school, and learn to read and spell ;—
And I am doing *very* well ;—
Perhaps you'd like to hear me tell
How many things I know.

"Well, if you'll only take a look—
Yes, this is it—the last I took,
Here in my pretty picture-book,
Just near the purple cover ;—
Now listen—Here are one, two, three
Wee little letters, don't you see ?—
Their names are D and O and G ;
They spell—now guess !—*Old Rover !*"

—*Sydney Dayre in St. Nicholas*

Examination Questions.

UNIVERSITY OF TORONTO.

JUNIOR MATRICULATION, 1882.

ENGLISH.

ARTS : PASS.

MEDICINE : PASS AND HONORS.

Examiner.—EDWARD B. BROWN, B. A.

*** Questions 12, 13, and 14 are for Candidates for Honors in Medicine only. Questions 8, 9, 10, and 11, are for Candidates in Arts only.

1. Write a short essay on any one of the following subjects :
   (*a*) The school system of Ontario.
   (*b*) Æstheticism.
   (*c*) Lord Macaulay.
   (*d*) Post equitem sedat atra cura.
2. Point out all grammatical errors and faults of style in the following sentences :
   (*a*) The Dean quit active work about a year ago.
   (*b*) Mr. * * * * 's medical attendant telegraphed that his patient had been removed, and was quite smart.
   (*c*) The author probably don't mean to say that the facts are clearly proven.
   (*d*) A most enjoyable time was spent by those present.
   (*e*) When he was young he travelled some, and thus gained considerable in experience.
   (*f*) When you were out, sir, a party called who said his name was Johnson.
   (*g*) I do not know as I can go with you to-morrow, but I should like to.
3. "His furniture consisted of a bed, a chair, a bureau, a trunk, and numerous pegs with coats and *pants* and *vests*,—as he was in the habit of calling waistcoats and pantaloons or trousers—hanging up as if the owner had melted out of them."—DR. HOLMES, *The Professor.*

   "The word *pants* is the proper correlative of the word *gent*—the latter invariably wears the former."—MR. RICHARD GRANT WHITE.

   Why is the use of the words *pants*, *vest*, and *gent*, considered a vulgarism ?
4. Give rules for the use of *shall* and *will.*
5. Classify and give examples of the English Diminutives.
6. Derive the English names of the days of the week.
7. What is grammar ?
8. What are the chief literary merits and defects of Goldsmith and Cowper ?
9. State and discuss the *trade theory* which is developed by the poet in *The Deserted Village.*
10. Quote the description of the village preacher from *The Deserted Village.*
11. Piety has found
    Friends in the friends of science, and true prayer
    Has flowed from lips wet with Castalian dews.
    Such was thy wisdom, Newton, childlike sage !
    Sagacious reader of the works of God,
    And in his word sagacious. Such too thine,
    Milton, whose genius had angelic wings,
    And fed on manna. And such thine, in whom
    Our British Themis gloried with just cause.
    Immortal Hale ! for deep discernment praised,
    And sound integrity, not more than famed
    For sanctity, of manners undefiled.
    All flesh is grass, and all its glory fades
    Like the fair flower dishevelled in the wind ;
    Riches have wings, and grandeur is a dream,
    The man we celebrate must find a tomb,
    And we that worship him, ignoble graves.

    The Task, Bk. III., vv. 249-265.

    (*a*) Explain the allusions in : *Castalian dews; All flesh is grass; Riches have wings.*
    (*b*) Write notes on Newton, Milton, Hale, Themis.
    (*c*) *Piety ; celebrate.* Derive those words, and illustrate the various senses in which each may be used.

(*d*) Analyze the sentence "And such thine.... undefiled," and parse; such; thine; Hale; praised; integrity; famed; undefiled.

(*e*) Point out all rhetorical figures in the extract.

12. Give examples of illusive etymologies in the English language.

13. Define and give examples of the different rhetorical figures of repetition.

14. Analyze the sentence, and parse the words given in 11 (*d*) above.

ENGLISH.

ARTS : HONORS.

Examiner.—D. R. KEYS, B.A.

1. What is known of the life of Shakespeare?

2. Show to what extent the historical drama had been cultivated prior to Shakespeare. Name the most distinguished modern dramatists who have handled modern subjects, giving the titles of their plays.

3. Shakespeare's histories have been divided into two classes, one dealing with strong, the other with weak kings. Give a list of the plays, classifying them on this basis.

4. "The one dominant subject of the histories is, how a man may fail, and how a man may succeed in attaining a practical mastery of the world."

Develop this idea with special reference to the play of Richard II.

5. Compare the plays of Richard II and Henry IV., with regard to the humorous element, and explain, as far as you can, the difference between them.

6. Richard II. has been called an "æsthete." State your opinion on this subject, and support it by passages from the play.

7. Contrast the characters of Richard II. and Bolingbroke.

8. Quote Gaunt's speech in praise of England, and mention any other passages in which Shakespeare exalts his country.

9. Give the substance of the charges preferred against each other by Hereford and Norfolk. What was the date of the trial by combat?

HISTORY AND GEOGRAPHY.

ARTS : PASS.

Examiner.—D. R. KEYS, B. A.

1. Give an account of the administrations of Robert Walpole, and the elder Pitt, contrasting the private characters of the two men, and showing the influence of each on the history of England.

2. Give a detailed account of the American Revolution, making particular reference to the measures which drove the colonists to revolt.

3. Write a short history of the reign of Augustus, noticing the constitutional changes, and dwelling on the features which made his age a literary era.

4. Sketch the internal and external condition of Rome at the close of the Third Punic War.

5. Contrast Athens and Sparta as to their form of government, their literary and their political influence at the time of the Peloponnesian war.

6. Tell all you know of the life, character, aud influence of Socrates.

7. Give a general description of the mountain system of Greece.

8. Locate, as accurately as you can, and give the modern names of: Ilva, the Aufidus, the Benacus, Ticinum, Panormus, Euripus, Baiæ, Naupactus, Eurotus, Ambracius Sinus.

9. Draw a map of any *one* of the following countries, showing the principal physical features and cities :—Spain, Austria, Mexico.

10. Describe a journey by rail from Toronto to San Francisco, naming the railroad lines, with the states and cities through which one would pass.

HISTORY AND GEOGRAPHY.

ARTS: HONORS.

Examiner.—EDWARD B. BROWN, B.A.

1. Explain the titles of Henry VII. and James I. to the Crown of England. What is meant by a "parliamentary title" to the Crown?

2. Sketch the history of Parliamentary Government during the reigns of the Tudors and the Stuarts.

3. Narrate briefly the history of England from 1642 to 1649.

4. Indicate the causes and results of the Revolution of 1688.

5. Give a brief account of the literature, politics, and manners of the reign of Queen Anne.

6. Draw a map of the western peninsula of Ontario, showing the principal physical features, the counties and chief towns.

7. Give an accurate description of the different Lake districts of the British Isles.

8. Name and describe the British possessions in Asia.

HISTORY AND GEOGRAPHY.

MEDICINE : PASS AND HONORS.

Examiner.—D. R. KEYS, B.A.

*** Questions 7, 8, 9, and 10, are for Candidates in Honors only.

1. Write short notes on the Witena-gemot, Magna Charta, and the Cabinet, and explain the present system of government in England.

2. Give a description of the different civil wars in which England has been engaged.

3. (*a*) Sketch the characters of Henry VIII., Charles II., and George III.

(*b*) Trace the descent of the Crown of England from Henry VIII. to George I.

4. Draw a map of any one of the following countries, showing the principal physical features and cities: Spain, Austria, Mexico.

5. Describe a journey by rail from Toronto to San Francisco, naming the railway lines, with the states and cities through which one would pass.

6. Mention and describe the situation, scenery, and surroundings of the principal lakes of Europe.

7. Give an account of the administrations of Robert Walpole, and the elder Pitt, contrasting the private characters of the two men, and showing the influence of each on the history of England.

8. Give a detailed account of the American Revolution, making particular reference to the measures which drove the colonists to revolt.

9. Name and describe the volcanoes of Europe and America.

10. Trace accurately the course of the following rivers: Mississippi, Severn (England), Restigouche, Hudson, Po, Red River, Ebro, Volga.

CHEMISTRY.

MEDICINE : HONORS.

Examiner.—W. H. ELLIS, M.A., M.B.

1. Give an account of the compounds of hydrogen with chlorine, sulphur, nitrogen, and silicon.

2. Define the terms "acid," "alkali," "base," "salt." Give examples of each.

3. How many grains of nitre are required to yield one kilogram of nitric acid?

4. Express by an equation the reaction that occurs where sulphuric acid is heated with copper.

5. Describe an experiment to shew the composition of carbon dioxide.

6. How many litres of carbon dioxide at 0^0C and 760^{mm} Bar. may be obtained by dissolving one kilogram of marble in hydrochloric acid?

$$H = 1,\ O = 16,\ N = 14,\ Ca = 40,\ C = 12,\ Cl = 35{\cdot}5.$$

INTERMEDIATE EXAMINATION 1882.

ENGLISH GRAMMAR.

TIME—THREE HOURS.

1. "And, truly, he who here
Hath run his bright career,
And serv'd men nobly, and acceptance found,
And borne to light and right his witness high
What can he better crave than then to die, 5
And wait the issue, sleeping underground?
Why should he pray to range
Down the long age of truth that ripens slow,
And break his heart with all the baffling change
And all the tedious tossing to and fro? 10

For this and that way swings
The flux of mortal things,

Though moving inly to one far-off goal.
—What had our Arthur gain'd, to stop and see,
After light's term, a term of cecity, 15
A Church once large and then grown strait in soul?"
—MATTHEW ARNOLD, *on the Death of Dean Stanley.*

(*a*) Analyze lines 11 to 16.

(*b*) Write the same lines in your own words, so as to show that you fully understand the passage. (Note to the Sub-Examiner—The second value is for the literary form of the answer.)

(*c*) Parse *to die* (l. 5), *underground* (6), *break* (9), *this and that way* (11), *stop* (14).

(*d*) Explain the meaning, and give the etymology of *flux* (l. 12), *inly* (13), *cecity* (15), *strait* (16); and also explain *light's term* (15).

2. Correct any errors in the following sentences, giving your reasons for each correction:—

(*i.*) "The time of Defoe was the age of Queen Anne, King William and his descendants."

(*ii.*) "Cowper had the power to knit the thong of satire, it sometimes seems, in quite equal strength to Pope. Take him all in all, we prefer him far before Pope."

(*iii.*) The myrtles and ivy of sweet two-and-twenty
Are worth all your laurels, though ever so plenty.

(*iv.*) The isles of Greece, the isles of Greece,
Where burning Sappho loved and sung,
Where grew the arts of war and peace,
Where Phœbus rose and Delos sprung.

(*v.*) No event is too extraordinary to be impossible.

(*vi.*) "'T was in Trafalgar's bay
We saw the Frenchman lay."

(*vii.*) A butcher bought two cows from two men who offered them for sale. The butcher had immediately slaughtered one of the animals and took both the hide and the carcase to the city. On the same day the owner traced it to the butcher's possession.

(*viii.*) "An indissoluble tie had been formed between them, and were it not for a return of his malady, their meditated marriage would, in all probability, have taken place."

(*ix.*) "When we consider what care she had taken of the poet, it is not unpardonable on her part to have shown some feelings of jealousy."

(*x.*) "The man was thought to be dead, but after pumping the water out of his stomach he began to show signs of returning consciousness."

(*xi.*) "A most interesting feature will be the submission of a pledge to support prohibition to the candidates. If the candidates refuse to recognize the prohibitionists they are determined to place a third man in the field on that issue."

(*xii.*) "If not more than 30,000 settlers will go in this year, there are already in the country more than enough non-producers."

(*xiii.*) "You have no idea how that this place is changed It is pretty near built over now."

(*xiv.*) "The ball and concert season have now commenced. The Prince is very popular, and he appears to be liked every place he goes."

(*xv.*) "This is the man whom I heard was ill."
"You was saying that neither I nor you are well."

3. Explain and give the origin of the phrases—*verb. sap.*; *infra dig.*; *bizarre*; *boycott*; *solecism.*

4. Spell phonetically—*nonchalant, ennui, bronchitis, penchant éclat, depot.*

5. Distinguish between *counsel* and *council*; *practise* and *practice*; *pérfume* and *perfume*; *compliment* and *complement.*

6. Accentuate—*illustrate, farrago, homœopathist, photographer.*

7. Give the rules for the use of shall and will, illustrating by examples.

8. Give the full etymology of the following words:—beef, chain, farrow, admiral, praise, due, dish, priest, fishmonger, companion.

9. Give fifteen English derivatives from *facio.*

10. Name three of the commonest faults in composition, giving examples of each.

Values:—1, *a*, 18; *b*, 10+5=15; *c*, 10; *d*, 9; 2, *i*, 4; *ii*, 2; *iii*, 2; *iv*, 4; *v*, 4; *vi*, 2; *vii*, 4; *viii*, 4; *ix*, 4; *x*, 4; *xi*, 4; *xii*, 2; *xiii*, 4; *xiv*, 4; *xv*, 2+2; 3, 10; 4, 6; 5, 8; 6, 4; 7, 14; 8, 10; 9, 15; 10, 9.

ENGLISH LITERATURE.

TIME TWO HOURS AND A QUARTER.

In the values, M. is for the matter of the answer; F. for its literary form.

I.—GOLDSMITH'S DESERTED VILLAGE.

1. "Sweet Auburn! parent of the blissful hour.
Thy glades forlorn confess the tyrant's power.
Here, as I take my solitary rounds,
Amidst thy tangling walks, and ruined grounds,
And, many a year elaps'd, return to view
Where once the cottage stood, the hawthorn grew
Remembrance wakes with all her busy train,
Swells at my breast, and turns the past to pain."

(*a*) Specify the words not of English origin in this extract, distinguish those of direct Latin origin from those derived thence indirectly through the French by the letters L. and LF. respectively.

(*b*) Analyze the passage from "Here" to "train."

(*c*) Explain the meaning of the following phrases:—*parent of the blissful hour; confess the tyrant's power; swells at my breast.*

2. Quote the description of the village preacher, beginning with the line—
"Thus to relieve the wretched was his pride."

3. Give a brief outline of Goldsmith's career, mentioning his chief poetical and dramatic works.

4. "Downward they move, a melancholy band,
Pass from the shore, and darken all the strand."
Explain the meaning of the last line.

II.—COWPER'S TASK—BK. III.

1. "Me, therefore, studious of laborious ease, 361
Not slothful; happy to deceive the time,
Not waste it; and aware that human life
Is but a loan to be repaid with use,
When He shall call his debtors to account, 365
From whom are all our blessings; bus'ness finds
Ev'n here: while sedulous I seek to improve,
At least neglect not, or leave unemploy'd
The mind He gave me; driving it, though slack
Too oft, and much impeded in its work 370
By causes not to be divulg'd in vain,
To its just point—the service of mankind."

(*a*) Write out the whole passage in prose, so as to show that you fully appreciate its meaning.

(*b*) Parse: *Me, studious* (l. 361); *waste*, (363); *to be repaid* (364); *sedulous* (367); *neglect* (368); *slack* (369).

(*c*) What is peculiar in the use of the words "studious" (l. 361), and "sedulous" (l. 367), in respect of either sense or construction, and what influence is traceable in this use?

(*d*) Explain the allusion in l. 365; also in the words "though slack—in vain" (369-71).

(*e*) One edition has a comma at the end of l. 369. Show how this would alter and destroy the sense.

(*f*) Derive *sedulous, divulge.*

2. Explain the italicised phrases in the following passages:—

(*i.*) What chance that I . . . .
Should speak to purpose, or with better hope
Crack the satiric thong?

(*ii*) . . . . . True pray'r
Has flow'd from lips *wet with Castalian dews.*

(*iii.*) His warm but simple home, where he enjoys
With her who shares his pleasures and his heart.
Sweet converse, sipping calm the *fragrant lymph*
Which neatly she prepares.

(*iv.*) Yet *gnats* have had, and *frogs and mice* long since,
Their eulogy; those sang the *Mantuan bard*,
And these *the Grecian* in ennobling strains.
And in thy numbers, Phillips, shines for aye
The solitary *Shilling.*

(*v.*) *Crape and cock'd pistol* and the whistling ball
Sent through the traveller's *temples.*

3. Account for the title of the poem.

4. Describe the condition of literature at the time of Cowper's appearance as a poet, and estimate the effect produced by his poetry.

III.—ADDISON'S SIR ROGER DE COVERLEY.

1. My worthy friend Sir Roger, when we were talking of the malice of parties, very frequently tells us of an accident that happened to him when he was a school-boy, *which* was at the time when

the feuds ran high between the Roundheads and Cavaliers. This worthy knight, being then but a stripling, had occasion to inquire *which* was the way to St. Anne's Lane, upon *which* the person *whom* he spoke to, instead of answering his question, called him a young popish cur, and asked him who had made Anne a *saint*. The boy, being in some confusion, inquired of the next he met which was the way to Anne's Lane, but was called a prick-eared cur for his pains, and instead of *being shewn the way*, was told that she had been a saint before he was born, and would be one after he was hanged.

(*a*) Parse the words italicised.

(*b*) *Roundheads; Cavaliers; prick-eared.* Explain the origin and meaning of these terms.

(*c*) Give some account of the state of political parties in Addison's time, and of the part he took in them.

2. Write explanatory notes on the words italicised in the following passages :—

(*i.*) A *setting dog* that he has *made* himself.

(*ii.*) He *wishes* Sir Roger does not harbour a Jesuit.

(*iii.*) I suppose this letter will find thee *picking of daisies*, or *smelling to a lock of hay*.

(*iv.*) *Sir Andrew* has grown the cock of the club . . . . . and will make every mother's son of us *commonwealth's men*.

(*v.*) I *was* no sooner come into *Gray's Inn* Walks *but* I heard my friend.

3. Give some account of the clubs and coffee-houses of Addison's time, and show how the former differ from those of the present day.

4. Who were the *Mohocks* mentioned in the *Spectator*?

5. Sketch the character of Will Wimble.

Values :—I. 1, *a*, M. 7 ; *b*, F. 1, M. 3; *c*, F. 1, M. 2 ; 2, F. 2, M. 5 ; 3, M. 2 ; 4, M. 2. II. 1, *a*, F. 2, M. 4 ; *b*, M. 4 ; *c*, M. 2 ; *d*, M. 1; *e*, M. 1 ; *f*, M. 2 ; 2, *i*, M. 1 ; *ii*, M. 1 ; *iii*, M. 2 ; *iv*, M. 3; *v*, M. 1 ; 3, M. 1 ; 4, F. 3, M. 3. III. 1, *a*, M. 3 ; *b*, F. 1, M. 3 ; *c*, F. 1, M. 3 ; 2, *i*, M. 2 ; *ii*. M. 1 ; *iii*, M. 2 ; *iv*, M. 2; *v*, M. 3; 3, F. 1, M. 6 ; 4, M. 2 ; 5, F. 1, M. 3.

COMPOSITION.

TIME—ONE HOUR AND A HALF.

I.

Write out the sense of the following passage in good prose :—

To my true king I offered free from stain
Courage and faith ; vain faith, and courage vain.
For him, I threw lands, honours, wealth, away,
And one dear hope, that was more prized than they.
For him I languished in a foreign clime,
Gray-haired with sorrow in my manhood's prime ;
Heard on Lavernia Scargill's whispering trees,
And pined by Arno for my lovelier Tees ;
Beheld each night my home in fevered sleep,
Each morning started from the dream to weep ;
Till God, who saw me tried too sorely, gave
The resting place I asked, an early grave.
Oh thou, whom chance leads to this nameless stone,
From that proud country which was once my own,
By those white cliffs I never more must see,
By that dear language which I spake like thee,
Forget all feuds, and shed one English tear
O'er English dust. A broken heart lies here.

—*Macaulay.*

II.

(*a*) Sketch the line of argument in the "Deserted Village," or

(*b*) Write a short essay on one of the following subjects :

(i.) The relative advantage of life in the country and in large cities.

(ii.) How far do intellectual and moral excellence go hand-in-hand? Illustrate by historical examples.

DICTATION.

TIME—THIRTY MINUTES.

Note for the Presiding Examiner.—This paper must not be seen by the Candidates. It is to be read to them *three times—first*, at the ordinary rate of reading, the Candidates simply paying attention ; *secondly*, slowly, the candidates writing ; *thirdly*, for revise.

The farmer imagines power and place are fine things. But the President has paid dear for his White House. It has commonly cost him all his peace and the best of his manly attributes. To preserve for a short time so conspicuous an appearance before the world, he is content to eat dust before the real masters who stand erect behind the throne. Or, do men desire the more substantial and permanent grandeur of genius? Neither has this an immunity. He who by force of will or of thought is great, and overlooks thousands, has the charges of that eminence. With every influx of light, comes new danger. Has he light? He must bear witness to the light, and always outrun that sympathy which gives him such keen satisfaction, by his fidelity to new revelations of the incessant soul. He must hate father and mother, wife and child. Has he all that the world loves and admires and covets? He must cast behind him their admiration, and afflict them by faithfulness to his truth, and become a by-word and a hissing.

This Law writes the laws of cities and nations. It is in vain to build or plot or combine against it. Things refuse to be mis-managed long. Though no checks to a new evil appear, the checks exist and will appear. If the government is cruel, the governor's life is not safe. If you tax too high, the revenue will yield nothing. If you make the criminal code sanguinary, juries will not convict. If the law is too mild, private vengeance comes in. If the government is a terrific democracy, the pressure is resisted by an overcharge of energy in the citizen, and life glows with a fiercer flame. Nothing arbitrary, nothing artificial can endure. The true life and satisfactions of man seem to elude the utmost rigours or felicities of condition, and to establish themselves with great indifferency under all varieties of circumstance. Under all governments the influence of character remains the same,—in Turkey and in New England about alike. Under the primeval despots of Egypt, history honestly confesses that man must have been as free as culture could make him.

HISTORY.

TIME—TWO HOURS AND A HALF.

1. Sketch the gradual extension of the Roman Empire from the termination of the Second Punic War to the death of Julius Cæsar.

2. Give a brief outline of the Roman method of Provincial Government.

3. State clearly what were the political abuses which the Gracchi attempted to reform, and in how far they were successful.

4. Relate briefly the history of the struggle of the barons with King John and his successor, and specify the principal provisions of Magna Charta.

5. Show why the loss of England's possessions in France was beneficial to the English people.

6. Sketch the policy of Wolsey and Thomas Cromwell, and the growth of despotic power under the Tudors.

7. Describe the condition of Canada during the administration of Champlain, and give a sketch of that governor's voyages and explorations.

8. Give an account of the first founding (under French rule) of Quebec, Montreal, Kingston and Toronto, with dates, and names of founders.

9. What were the terms of the Union between Upper and Lower Canada in 1841, and on what were they based?

Values :—1, 14 ; 2, 6 ; 3, 14 ; 4, 10+6=16 ; 5, 6 ; 6, 4+4+8=16 ; 7+5=12 ; 8, 4 ; 9, 12.

GEOGRAPHY.

TIME—TWO HOURS.

1. (i.) Name in order, beginning in the north and ending in Mexico, the provinces of the Dominion and the States of the American Union on the eastern side of North America that possess one or more seaports ; (ii.) Name an important seaport in each ; (iii.) state the chief export or exports from each such seaport ; and (iv.), if it is situated at the mouth of, or upon a large river, name that river.

2. (i.) Contrast the physical characteristics of Northern and Southern Europe ; (ii.) Arrange the governments of the different European states under the following heads :—Republics, Limited Monarchies, Absolute Monarchies.

3. (i.) Draw an outline map of Hindostan ; (ii.) mark on it the names and courses of three important rivers, and the names and positions of the chief mountain ranges and of four large cities.

4. (i.) Name five African lakes ; and (ii.) state with regard to each whether it is north of, south of, or on the equator.

5. Explain why, though Canada is nearer the sun in January than in July, the weather is warmer in the latter month.

Values :—1, 40 ; 2, 20 ; 3, 20 ; 4, 10 ; 5, 10.

BOOK-KEEPING.

TIME – ONE HOUR AND A QUARTER.

1. Explain the terms Folio, Cash, Trial Balance, Postings, Bills Receivable, Sundries, Consignment.

2. Write out the general forms of a Promissory Note, a Draft, and a Bill of Exchange.

3. Define the terms, Profit and Loss, Stock, Exercise, Bill of Entry, Drawback, Dividend.

4. What is the general rule of Debiting and Crediting?

5. Journalize the following:—

(*a*) I receive a legacy of $1000.

(*b*) Borrowed $500, for which I give my note due three months hence.

(*c*) Took a promissory note in payment of a debt of $100; discounted same ; net proceeds $97.

(*d*) Sold Mdse. amounting to $1000, for which I received $500 Cash, Cheque on Bank of Montreal for $200, Note at 60 days for balance.

(*e*) Commenced business with a capital of $2000 cash, in Bills Receivable, $2000 borrowed from A. B.

Values :—1, 14 ; 2, 15 ; 3, 18 ; 4, 4 ; 5, 24.

CHEMISTRY.

TIME—ONE HOUR AND A HALF.

1. A specimen of water was divided into two parts. One part was then boiled for some time. To this and the unboiled portion contained in separate bottles, a small quantity of finely powdered chalk was added. Upon agitation it was found that the boiled portion had become milky, the unboiled portion remained clear, the chalk having dissolved. Explain the cause of this difference.

2. How much sulphur dioxide, by weight, can be obtained by burning 25 grains of sulphur in sufficient oxygen?

3. Which of the following gases should be collected by *upward* and which by *downward* displacement: Chlorine, Carbon Dioxide, Hydrogen, Sulphur Dioxide, Ammonia?

4. A quantity of alcohol, contained in an evaporating dish, was ignited and the burning liquid poured through wire gauze held over a beaker. The flame was by this process confined to the upper surface of the wire gauze, and the greater part of the alcohol collected unignited in the beaker. State the principle upon which the success of this experiment depends.

5. Assign reasons for assuming that the atmosphere is not a chemical compound but a mechanical mixture of oxygen and nitrogen.

6. Describe the physical changes which sulphur undergoes in being heated to 440°C.

7. Write out the equation representing the reaction taking place in the preparation of nitrogen dioxide, and represent by diagram the necessary apparatus for its elimination and collection.

8. A piece of paper saturated with spirits of turpentine when plunged into a jar containing dry chlorine ignites. Explain.

9. (*i.*) Write out the equation representing the reaction in preparing carbon dioxide from calcium carbonate and hydrochloric acid.

(*ii.*) How much, by weight, of calcium carbonate is required to furnish 12 litres of carbon dioxide, measured at 0°C and 760$^{mm.}$ P.?

Values :—1, 12 ; 2, 10 ; 3, 10, 5 × 2 ; 4, 10 ; 5, 12 ; 6, 8 ; 7, 15, 5+10 ; 8, 8 ; 9, 15, 5+10.

EUCLID.

TIME—TWO HOURS AND A HALF.

(*Usual abbreviations permitted.*)

1. A parallelogram is a rectilineal figure whose opposite sides are parallel and whose opposite angles are equal.

Show clearly what is deficient and what redundant in this definition.

2. The three angles of a triangle are together equal to two right angles.

Prove this ; and by its means show how to divide a right angle into three equal parts.

3. Triangles upon the same base and between the same parallels are equal to one another. Prove this ; and thence show how to change an irregular four-sided figure into an equal triangle.

4. Given three straight lines, show how to construct a triangle having three lines for sides. Can it always be done? Explain fully.

5. If a straight line be bisected and also cut into two unequal parts, give the relations existing amongst the segments as expressed in two propositions of the Second Book of Euclid, and proves one of these propositions.

6. Do *one only* of the following:

(*a*) If A, B, C be the angular points of a triangle, find an expression for the perpendicular from A upon the side BC, in terms of the sides.

(*b*) If from any point in the circumference of a circle two lines are drawn to the extremities of a diameter, the sum of the squares upon these lines is constant ; and the angle contained by these lines is a right angle. [No reference to Euc. Bk. III.]

7. What proposition of the Second Book would be formed from Euc. II., 12, by bringing the vertex A down to the point D in the side BC produced?

Values—1, 10 ; 2, 18 ; 3, 18 ; 4, 14 ; 5, 16 ; 6, *a* 12, *b* 12 ; 7, 12.

PUBLIC SCHOOL TEACHERS—1882.

FIRST CLASS TEACHERS—GRADES A AND B.

ANCIENT HISTORY AND GEOGRAPHY.

TIME—TWO HOURS AND A HALF.

1. Give an account of the second invasion of Greece by the Persians.

2. Sketch briefly the Constitution of Athens in the time of Pericles.

3. State, in chronological order, with dates, the conquests of Rome from B.C. 202 to B.C. 133.

4. Describe the character and career of Caius Gracchus, or of Lucius Sulla.

5. Describe briefly the political circumstances which led to the banishment and recall of Cicero.

6. Locate the following places: Ravenna, Brundisium, Pharsalia, Cannae, Pydna, Potidaia, Actium, Munda, Saguntum, Philippi, Ægos Potamos, Sphakteria, Minturnae, Skandeia.

ENGLISH AND CANADIAN HISTORY.

TIME—TWO HOURS AND A HALF.

1. Reproduce Green's sketch of the character and career of Thomas Cromwell.

2. Describe, after Macaulay, the state of England at the accession of James II.

3. Sketch, after Hallam, the history of the English constitution during the reign of William III.

4. Explain the nature of the feudal system established in Canada by the French.

5. Write brief historical notes on Laval, the English standing army, and the High Commission Court.

ENGLISH LANGUAGE AND HISTORY OF ENGLISH LITERATURE.

TIME—TWO HOURS AND A HALF.

1. State briefly the changes caused by the Norman Conquest (1) in the Grammar, (2) in the vocabulary of English. Illustrate by examples what has been termed the bilingualism of English.

2. Give the derivation and history of the following words: jeopardy, villain, esquire, chattels, strange, mercy, priest, scourge, tantalize, tribulation, utopian, hybrid.

3. State the chief peculiarities of poetic diction as distinguished from prose diction.

4. Describe the distinctive features of the English Sonnet in regard to (1) treatment of subject, (2) metre.

5. Name the principal prose writers of the reign of Elizabeth with their works, and write a short criticism of the Ecclesiastical Polity of Hooker.

6. Criticise the statement "that Shakspeare deviated from the dramatic unities of time, place and action, laid down by the ancients:" state how far such deviation is both allowable and necessary. Illustrate your answer by reference to any of the plays of Shakespeare.

7. Write a short account of the Vision of Piers the Ploughman.

MILTON, POPE, AND JOHNSON.

TIME—TWO HOURS AND A HALF.

"A man may be a heretick in the truth; and if he beleeve things only because his Pastor sayes so, or the Assembly so determins, without knowing other reason, though his belief be true, yet the very truth he holds becomes his heresie. There is not any burden that som would gladier post off to another then the charge and care of their Religion. There be, who knows not that there be, of Protestants and professors who live and dye in as arrant an implicit faith as any lay Papist of Loretto. A wealthy man addicted to his pleasure and to his profits finds Religion to be a traffick so entangl'd and of so many piddling accounts, that of all mysteries he cannot skill to keep a stock going upon that trade. What should he doe? Fain he would have the name to be religious, fain he would bear up with his neighbours in that. What does he therefore but resolvs to give over toyling, and to find himself out som factor, to whose care and credit he may commit the whole managing of his religious affairs, som Divine of note and estimation that must be."

Areopagitica, pp. 38 and 39, Hale's edition.

(*i.*) Explain the meaning of the first clause of the first sentence, of 'professors,' 'arrant,' 'implicit faith,' 'lay Papist of Loretto,' 'piddling,' 'mysteries,' 'skill,' 'bear up with,' 'factor.'

(*ii.*) Re-write the third sentence in modern and courteous English.

(*iii.*) Express in other words the meaning of the fourth sentence.

(*iv.*) Write an explanatory note on 'Assembly,' and a geographical and historical one on 'Loretto.'

(*v.*) Explain the derivation of 'heretick,' 'determins,' 'arrant,' 'implicit,' 'mysteries.

(*vi.*) Parse 'of' and 'that' in the last clause of the last sentence.

2. Give an account of the subjects which occupied men's minds in England in the year in which *Areopagitica* was written.

3. Quote Pope's lines on vice, Bacon, Cromwell, 'the poor Indian,' the pride of birth.

4. "Who first taught souls enslav'd, and realms undone,
Th' enormous faith of many made for one;
That proud exception to all nature's laws,
T' invert the world, and counterwork its cause?"

(*i.*) Parse 'souls,' 'faith,' 'exception,' 'T' invert.'

(*ii.*) Express the meaning in other words.

(*iii.*) Give, in either Pope's words, or your own, his answer to the question.

5. Point out and illustrate what you consider Pope's chief merit and chief defect as a poet.

6. What does Matthew Arnold mean by saying that regularity, uniformity, precision, balance, are the qualities of a serviceable prose style? Explain fully.

7. Write a brief account of Johnson's literary work, and state clearly the nature of his literary and other influences upon his age.

CHAUCER.

TIME—TWO HOURS AND A HALF.

1. Re-write in modern English, line by line, the following passages:—

(*a*) "But of his craft to rikne wel the tydes,
His stremes and his dangers him bisides,
His herbergh and his mone, his lodemenage,
Ther was non such from Hull to Cartage."

(*b*) "Wel couthe he in eschange scheelds selle.
This worthi man ful wel his wille bisette:
Ther wiste no man that he was in dette,
So estately was he of governaunce,
With his bargayns and with his chevysaunce."

2. Explain the meaning of the following lines:—

(*a*) Ful ofte tyme he had the bord bygonne.

(*b*) His eyen steep....That stemed as a forneys of a leede.

(*c*) Sownynge in moral manere was his speche.

(*d*) Therto he couthe endite, and make a thing,
Ther couthe no man pynche at his writyng.

(*e*) And yet he had a thombe of gold parde!

(*f*) And yit this maunciple settle here aller cappe.

3. Explain the expressions—"loken in every lith," "me mette," "my lief is faren on londe," "my sweven rede aright," "ne do no force of dremes," "so mot I the," "It is no nay," "forslouthe thy tyde," "He knew by kynde," "Real he was."

4. Give the meaning and derivation of the words—vernicle, palmer, pilgrim, lyveré, letuaries, anlas, parvys, daun, lymytour and dragges.

5. Define clearly the position of Chaucer's English with reference to the History of the English Language.

6. Describe the metre and versification of the Canterbuy Tales, and state particularly the position which final -e holds in Chaucer's verse.

7. State the plan of the Canterbury Tales, as detailed in the Prologue.

THE MERCHANT OF VENICE.

TIME—TWO HOURS AND A HALF.

1. Sketch the characters of Antonio and Jessica.

2. Write a brief critical account of the humorous element in this play.

3. Compare this play with any other by Shakspere, so as to make plain the stage of development which his mind and art had reached when it produced each.

4. Quote Portia's speech for mercy, and explain the meaning of the first line.

5. *Shylock*—

What judgment shall I dread, doing no wrong?
You have among you many a purchas'd slave,
Which, like your asses, and your dogs, and mules,
You use in abject and in slavish parts,
Because you bought them:—shall I say to you,
Let them be free; marry them to your heirs?
Why sweat they under burdens? let their beds
Be made as soft as yours, and let their palates
Be seasoned with such viands? You will answer:
The slaves are ours.—So do I answer you:
The pound of flesh, which I demand of him,
Is dearly bought, 'tis mine, and I will have it.
If you deny me, fie upon your law!
There is no force in the decrees of Venice.
I stand for judgment: answer; shall I have it?

—*Act IV, Scene* 1.

(*i.*) What are Shylock's motives for desiring the death of Antonio?

(*ii.*) Explain the meaning of 'parts' (1. 4).

(*iii.*) State the previous explanation of the force of the argument in ll. 13 and 14.

(*iv.*) Point out the run-on lines and the extra-syllable lines. What arguments have been based on the proportions of these in different plays of Shakspere?

9. Write explanatory notes on the following phrases and words:

I have thee on the hip.

Rialto,	Eanling,	Argosy,	Notary,
Lichas,	Signior,	Penthouse,	Usance.

7. By whom, and at what stage of the action of the play is each of the following passages uttered?

"The man that hath no music in himself,
Nor is not moved with concord of sweet sounds,
Is fit for treasons, stratagems, and spoils."

"Let me play the fool:
With mirth and laughter let old wrinkles come,
And let my liver rather heat with wine,
Than my heart cool with mortifying groans."

"How far that little candle throws his beams!
So shines a good deed in a naughty world."

FIRST CLASS TEACHERS—GRADE C.

ENGLISH HISTORY.

TIME—THREE HOURS.

1. Describe concisely the relation of William III. to the political parties of his reign.

2. "William the Third's reign is, no doubt, one of the most important in our constitutional history, on account of those beneficial alterations in our law to which it gave rise." Describe briefly the alterations to which Hallam refers in this passage.

3. "Walpole was not only the first English Peace Minister: he was the first English Minister who was a great financier."

Describe in detail the policy of Walpole's Administration in the two aspects here referred to.

4. Describe briefly the career and character of William Pitt, Earl of Chatham.

5. Sketch the progress of British power in India during the reigns of George II. and George III.

6. Describe the policy of the younger Pitt towards France on the outbreak of the Revolution. Contrast his policy with that of Burke, and state briefly the aim and influence of Burke's "Reflections on the French Revolution."

GEOGRAPHY.

TIME—TWO HOURS.

1. Trace the course of the following rivers, naming the chief towns on their banks:—the Vistula, Garonne, Tagus, Shannon, and Rhone.
2. Describe, geographically, Heligoland, Malta, Constantinople, Londonderry, Singapore, Halifax, Jamaica, and Hong-Kong.
3. Draw a map of Ontario, showing the direction of the principal rivers, the position of the cities and the chief lakes.
4. Write a geographical description of the Bengal Presidency.
5. Name and describe the position of the scenes of the chief events in the American Revolution.
6. Describe the position of Queenston Heights, Chateauguay, Richmond (U.S.), Monongahela, Pampeluna, Tilsit, Borodino, Sadowa, Sedan, and Arcola.
7. Draw an outline map of England and Wales, showing the direction of the Thames, Severn, Mersey, Tyne and Ouse, and the position of Leeds, Sedgmoor, Barnet, Oxford, Bristol, Hull, Naseby, Dover, Canterbury and Exeter.

ENGLISH GRAMMAR.

TIME—TWO HOURS AND A HALF.

1. "*Plant* behind plant aspiring *in* the van the dwarfish in the rear *retired but* still sublime above the rest the statelier stand."—*Cowper—The Task.*

(*i.*) Arrange in metrical lines.
(*ii.*) Punctuate.
(*iii.*) Divide into propositions.
(*iv.*) Parse the italicized words.
(*v.*) Point out the words not native to the language.
(*vi.*) Explain the meaning.

2. (*i.*) Make a list of the pronouns; if you include any words in it which are sometimes pronouns and sometimes not, distinguish between their different uses; if you include *another* in your list, but not *the good*, explain your reason.

(*ii.*) Classify the pronouns, giving such a definition of each class you make as will comprehend all the words you put in it and no others.

N.B.—If you find it impossible to frame a logically satisfactory answer to any part of the question, point out clearly where the one you give is defective.

3. Correct, giving reasons, or justify:

My son is to be married to I know not who.
Thou never didst them wrong, nor no man wrong.
'Twas Love's mistake who fancied what it feared.
Sir Theodore was one of the few South Sea directors, who (though he lost considerably) did not lose his character.

4. Improve the English of the following paragraphs:

"The Capitulation and Treaty of Limerick were both performed by one man named Gingel the general of William about 1791. Sarsfield held Limerick against William in 1689—1691 when it was forced to surrender on condition that the soldiers could go into foreign service and the Catholics have the same rights as a Protestant. Ginkel acquiesced in this which he should not have done as it was not in his power to form a treaty."

"They were planned by a clever servant, who to say all that can be said in his praise, is, that he is worthy of such a master as he has."

"Let us hear Dr. Lingard, to prevent his society from presenting whose work to me the sincere and pious Samuel Butler was ready to go down upon his knees."

"Sixteen have been sentenced to suffer death, but two only were left for execution."

"If your correspondent has any real object in view, he will furnish the names of the persons to whom he alludes; and I have no means of making this known to him except through the medium of your columns, and on receiving which he may be sure that the fullest investigation will be proceeded with."

5.

Art	Bay	Bound
Arch	Blow	Bow
Ball	Boot	Bugle
Bass	Bore	Bull.

(*i.*) Each of the preceding combinations of letters represents more than one word. Explain the meaning of each word.

(*ii.*) Point out the cases in which a difference of meaning is marked by a difference of pronunciation, and indicate these different pronunciations by means of rhyming words.

(*iii.*) State which words are derived from the Latin or Greek.

6. Account for the difference between the spelling of the terminations of

'deferred'	and	'differed,'
'employed'	"	'defied,'
'the Henrys'	"	'miseries,'
'infallible'	"	'incurable,'
'saddest'	"	'longest,'

ENGLISH LITERATURE.

TIME—TWO HOURS AND A HALF.

RICHARD II.

1. What, according to the Gardener, was the cause of Richard the Second's failure as a king? What is the verdict of history on this point?
2. Write a summary of Act IV.
3. By whom, and at what stage of the action of the play, are the following passages uttered?

"Of comfort no man speaks:
Let's talk of graves, of worms, and epitaphs."
"This precious stone set in the silver sea,
Which serves it in the office of a wall,
Or as a moat defensive to a house,
Against the envy of less happier lands."
"O, who can hold a fire in his hand
By thinking on the frosty Caucasus?"
"The setting sun and music at the close
As the last taste of sweets is sweetest last
Writ in remembrance more than things long past."

(*i.*) Complete the first quotation.
(*ii*) Punctuate the last quotation, and express the meaning in other words.

ADDISON.

4. Reproduce Johnson's estimate of Addison's literary merits.

THD DESERTED VILLAGE.

5. Express in a series of propositions the political economy of the Deserted Village, quoting or referring to one passage in support of each.
6. "'Twere well,' says one sage, erudite, profound,
Terribly arched and aquiline his nose,
And overbuilt with most impending brows,
''Twere well, could you permit the world to live?'"
—*Book III., ll.* 191-195.

(*i.*) Give, in Cowper's words or your own, his answer to this question.
(*ii.*) To what criticism by Cowper is the quotation an objection?
7. Quote or refer to passages to show that Cowper is "an apostle of senesbility."
8. What evidence is there in the third book of *The Task* as to the connection between Cowper's religious views and his insanity?

JOHNSON AND MACAULAY.

9. Reproduce Macaulay's account of Boswell, of Johnson's relations with the Thrales, and of the inmates of Johnson's house.

COMPOSITION.

TIME—ONE HOUR.

Write a composition on one of the following topics:—
The Irish Question.
The Uncertainty of Life.
The Difference between Mechanical and Intellectual Teaching.

CHEMISTRY.

TIME—TWO HOURS.

1. If a platinum spiral, heated to redness at its lower end, be plunged into a flask containing a few drops of strong solution of ammonia, the platinum spiral becomes brilliantly incandescent and con-

tinues to glow for a great length of time, white clouds of ammonium nitrate being formed at the same time.

(*i.*) Explain the cause of the increase of the heat of the platinum spiral evinced by its becoming incandescent.

(*ii.*) Explain the function of the platinum in this reaction.

(*iii.*) Could a steel spiral be substituted for the platinum with the same effect? Give reasons.

(*iv.*) Write out the equation representing the chemical reaction taking place within the flask.

2. Describe a method for obtaining *pure* nitrogen dioxide.

3. A mixture of 15 C.C. dry air with 8.2. C.C. of dry hydrogen were exploded in a Eudiometer. After explosion the gas remaining in the Eudiometer measured 13.8. C.C. Calculate from these data the quantity of oxygen by volume present in 100 vols of dry air.

4. By analysis the percentage composition of a certain compound was found to be

N=26.232
H= 7.49
Cl=66.27

99.992

Calculate from these data the formula of the compound.

5. Six glass cylinders are respectively filled with nitrogen monoxide, oxygen, carbon monoxide, sulphur dioxide, carbon dioxide and nitrogen dioxide. What experiments would you perform to identify each individual gas?

6. Represent by diagram the apparatus required for preparing sulphur trioxide.

7. A glass cylinder (capacity 580 C.C.) furnished with platinum electrodes was filled at 2°C. and 763^{mm}P. with oxygen. The enclosed gas was then subjected for a length of time to electric discharges. Calculate the weight of ozone formed on the supposition that the contraction in volume equalled $\frac{1}{12}$.

8. Describe the method of preparing platinum black, and explain its action upon a jet of hydrogen.

9. What precaution must be observed safely to conduct the experiment for preparing Nitrogen from Ammonia and Chlorine?

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

IV. The Law of Diffusion, or Graham's Law.

The velocity of diffusion of different gases is inversely proportional to the square roots of their densities. This means that the densities of oxygen and hydrogen are 16 and 1, and that 1 volume of oxygen or 4 volumes of hydrogen will pass through a porous plate, dry membrane, cork, unglazed porcelain, dry plaster of Paris, thin sheet of black lead, spongy platinum, etc., in the same length of time. The densities are as 16 to 1, the velocities of diffusion are as $\frac{1}{\sqrt{16}}$ to $\frac{1}{\sqrt{1}}$, or as 1 to 4. Similarly hydrogen will diffuse nearly six times as rapidly as chlorine, $1 : \frac{1}{\sqrt{35 \cdot 5}}$. It will follow that if the velocity of diffusion is known the density of the gas can be found by this law, and this has been applied to find the specific gravity of gases.

When gases which do not combine with each other are brought into contact at their surfaces, or even when separated by fine tubes, porous plates, etc., gaseous diffusion goes on through the minute pores. It is owing to this important property that the poisonous gases near large cities, volcanoes, manufactories, etc., do not accumulate, but rapidly distribute themselves, and the air thus maintains its purity throughout.

A good illustrative experiment consists in filling a wide tube with a plaster of Paris plug at one end and thoroughly drying the plug till it becomes porous. This *diffusion tube* is then filled with hydrogen gas by displacement, but the plug is carefully covered with the thumb or otherwise, to prevent the escape of the hydrogen through the pores. When the tube is full the thumb is removed, and the air on the outside and the hydrogen on the inside of the tube begin to pass in opposite directions through the pores of the plug but at very different rates. If as much air came in as the hydrogen that passes out, the tube with its lower end immersed in water would remain full of gas. But the actual fact observed is the water gradually creeping up the tube, showing that more gas goes out through the pores than comes in, that between three and four times as much hydrogen as air passes through the plug, the rise of the water being nearly a measure of the difference. One striking peculiarity is that if a heavy gas-like carbonic acid be placed in a flask, and another flask containing a light gas, say hydrogen, be inserted over the first, the two being connected by a thin porous plug, or a fine tube, the heavy gas rises in opposition to gravity, and the light one descends through the pores. A little lime water introduced into the upper flask after an hour or so will immediately turn milk-white, proving the presence of carbonic acid in the upper vessel, although carbonic acid is 22 times as heavy as hydrogen. The diffusion of liquids is a parallel case, and may be shown by putting very thick syrup in the lower flask and water in the upper. After a few hours the liquid will be the same in both vessels.

A useful application of the diffusive power of gases has been made to give warning of danger from explosions in coal mines. Light carburretted hydrogen, or fire-damp, comes next to hydrogen in diffusive power. One hundred volumes of air will be replaced by 134 volumes of fire-damp in an atmosphere of that gas. Hence a bladder containing air will rapidly distend when placed in fire-damp. The little air-balloon is placed under a small lever in the mine. If fire-damp accumulates the lever is raised and gives telegraphic warning. In an improved form the distension of the gas is made to depress the column of mercury on one side of a U-tube and raise it on the other, and thus connect the poles of a battery, which rings the danger-bell.

Another application of this principle of diffusion is called ATMOLYSIS, and consists in separating two gases out of a mixture by their different rates of diffusion. Thus if oxy-hydrogen gas comes in contact with flame it explodes violently. But if the explosive mixture be first passed through a long-stemmed tobacco pipe which is new and dry, the greater portion of the hydrogen will pass through the pores of the pipe, while most of the heavier oxygen will pass on, and when collected will no longer explode, but will rekindle a glowing splinter, proving it to be oxygen.

The molecules of a gas are in rapid motion, and the pressure of the gas on the sides of the vessel confining it is due to this motion of the molecules. Now we know that the pressure of hydrogen on the jar is the same as that of oxygen, both being equal to the pressure of the atmosphere, notwithstanding the fact that oxygen is 16 times as heavy as hydrogen. If a molecule of hydrogen weighs 2 a molecule of oxygen weighs 32. But by the law of diffusion, if the velocity of the oxygen molecule is 1, the velocity of the hydrogen molecule is 4. Now the moments, that is their pressures, will be velocity × weight. Hence the pressure of the hydrogen molecule is $4 \times 2 = 8$, the pressure of the oxygen molecule is $1 \times 32 = 32$. Now if we suppose that each jar contains the same number of molecules, say n, then since four times as many hydrogen molecules strike a point in a given time, as oxygen particles, the impact of the n hydrogen molecules will give a pressure of $n \times 4 \times 8 = 32\,n$, and of the n oxygen molecules $n \times 1 \times 32 = 32\,n$. That is the pressures are equal as required by the fact. Thus we see the law of diffusion furnishes a confirmation of Avogadro's law. That law is also borne out by researches in physics, quite independent of chemistry, and is now

generally accepted as the simplest and most probable explanation of the behaviour of gases. (See Kinetics.)

The ATOMIC THEORY, which we have taken for granted in all our explanations, is now used by chemists as a generalisation of a well established experimental fact. We assume that all substances are built up of atoms in the same sort of way that every well examined substance is found to be built up of atoms. We assume that all the atoms of the same element have the same weight, but a weight different from that of the atoms of every other element. We assume that chemical combination is the approximation of atoms to each other, and that chemical decomposition is the separation of atoms.

EXERCISE III.

64. What are the allotropic forms of carbon? How is it proved that they are chemically identical?

65. How does chlorine bleach? What conditions are necessary?

66. What are the allotropic modifications of phosphorus? How do they differ?

67. There are altogether 30 grams of oxygen in a quantity of $Mn\ O_2$. What is the weight of the oxide and how much oxygen can be got from it. See problem 27. Ans. 81·562, and 10 grams.

68. What is the difference in the composition of hard and of soft soap?

69. What are the varieties and the constituents of glass?

70. Find out whether there is any iron in some commercial sulphuric acid. What is the test for iron?

71. Define analysis, quantitative and qualitative, synthesis, allotropism, nascent state, isomerism and element.

72. Do fishes breathe air or what? Explain.

73. Show how to get metallic copper from cupric sulphate, and metallic lead from plumbic acetate.

74. Assign sufficient reasons for the statement "the inside of the earth is hot enough to melt rocks."

75. State the laws of chemical combination, and give examples.

76. Draw a diagram of apparatus for ascertaining the composition of water by synthesis, and explain the mode of conducting the experiment.

77. What is the reason the water is slightly acidulated in exp. 12?

78. How would you distinguish in the dark whether a certain fragment was potassium or sodium? Given a basin of *warm* water.

79. Give six examples of metathesis or displacement, and find out some monads, dyads, triads, and tetrads, that is substances which will displace, one, two, three and four atoms of hydrogen.

A PROTEST AGAINST FORMAL GRAMMAR.

We have much pleasure in reprinting the following letter which appeared a few days ago in the Toronto *Globe*:—

Some years ago at a teachers' examination in one of our county towns, when the examinations were entirely oral, and the clergy of different denominations the examiners, a young backwoodsman was asked "What is English grammar?" He had been looking rather glum as he sat facing the Scotch minister in one corner of the little room in the Court House, wondering what was coming. But his face lit up at this question, which was answered almost before it was finished, "A little book with a blue cover, sir."

If this question were put to one such as he to-day it could not be answered so briefly, for there are little books and big books and middling-sized books in every variety of colour too, and all differing. So that now our children, having mastered one set of rules and definitions that should last a lifetime, find when promoted to the higher rooms that what cost no little study to acquire, has to be forgotten and a new set learnt. Shortly before the holidays commenced a young girl from the country attending one of the higher city schools, told me that to her this was the most troublesome lesson she had. The old rules—she could repeat Davis' syntax *verbatim*—were so fixed in her memory that they would perversely obtrude so soon as she tried to clothe the same ideas in a new dress, and fearing this might cost her the examination she studied till her head and her heart both ached.

But besides all these grammars there seems to be an unwritten set of rules in the minds of the teachers that supersede those in the hands of the pupils. Not long ago a boy, following the rule in his book, made the verb to be with the adjective the predicate, but the master said it was wrong. An older boy, who had done the same, showed the master the rule, which says that the verb to be, only when it means to exist, can of itself form the predicate, but it was wrong nevertheless. They were told that the adjective, instead of helping to form the predicate, had become the "predicative adjective," and consequently the boys got an "imperfect." But since then the verb to be is itself tabooed. True it is in the authorized grammars, but it is ordered to be crossed out, and above it to be written the "copulative verb"—that being a larger and a harder word, is of course to be preferred. Then the grammars speak of a direct and indirect object; added to these, however, have to be interpolated the "factitive object," the "cognate object," the "object of space," the "double object," and the "indirect object No. 2."

A boy who had recently passed an examination in Latin and French, the former after only a half year's study, utterly failed in English grammar, which he had been studying for the last half dozen years, and it is his native tongue as well. And linguists will readily acknowledge that Latin and French, with their inflections, their numerous pronouns, the genders of their nouns, together with the irregularities of their verbs, present difficulties that do not exist in English. It really seems that modern grammarians have a spite against the English language because it is not inflected, and therefore try their utmost to make it as much like an inflected one as possible. But I need give no more illustrations. Parents will agree with me that English grammar is one of the most puzzling lessons the children bring home, and what with the constant change, added to the uncertainty of the text book as a guide, they are little able to give help.

Lately a clergyman, who a few years ago was reckoned one of the best grammarians in one of our collegiate institutes, visited a country school. Analysis was the lesson in hand, and the master politely asked the visitor to examine the class. He began, but his shibboleth betrayed him. The advanced thought on this ever-varying subject had somehow or other reached that wayside school, and ever after the master refrained from asking the scholarly visitor to examine a class in any subject whatever.

If the young backwoodsman had looked into this same "little book with a blue cover," he would have seen that "English grammar is the art of speaking and writing the English language with propriety," and the utter lack of success with which this is taught in our schools, with all the attention given to the study of grammar (I allude particularly to "speaking"), will occupy the remainder of this little paper.

When I had been in England a few months a friend said to me "Are you a Canadian?"

"Yes, and proud of it."

"Educated in Canada?"

"Yes. Why do you ask?"

"Because I have been told by some people who have lived in Canada that the Canadians spoke most incorrect English, and we have been all looking for you to make gross mistakes."

"Thank you," I replied. Off Canadian soil I would not admit it nevertheless the assertion was true.

The young girl to whom I have already alluded, thought she knew by heart the entire syntax of one of our grammars, said:—"I would have *went* to Dr.——for my headaches, but I *know'd* he wouldn't do me *no* good, for I *seen* a girl that tried him, and he never *done* her *no* good at all."

A boy who tried the recent combined examinations told me that he felt sure he had passed in grammar, but he *seen*, *done*, and *know'd* throughout the telling of it in the most orthodox manner.

One of our city scholars, in speaking of a pair of boots, made the assertion that "*Them* soles never *comes* off."

Trying to find a street recently, I applied to a young lady who had just left school, and was told it was a "long *ways* down."

"I went to the post office *for* to post a letter," said a young lady trained in our schools.

A young man, who has just passed with credit through one of our collegiate institutes, said in excuse for not having gone to church a few Sunday mornings ago, that he had "*laid* in bed" too long, and he always tells his dog to "*lay* down."

A senior school girl, speaking of a party at which she had been, said, "All our girls *was* dressed very *pretty*."

"How did you do your map?" one pupil asked another as I was passing. "Oh, I couldn't draw the lines *good nohow*, but I *done* the rest *good* enough."

Then how rarely one hears shall and will used correctly. How familiar the question "Will I?" than which nothing is more absurd, seeing that none but the questioner himself knows whether he will or no.

During the singing in a church this line occurred in one of the hymns, "Peace, joy, and willingness come with the sight"; but old habit was stronger than print, and "Peace, joy, and willingness *comes* with the sight" resounded throughout the building, though doubtless those pleasant-voiced singers could have learnedly explained the "prolative infinitive," the "gerundial infinitive," the "infinitive of purpose," etc.

"What kind of people have you here?" was sneeringly asked in one of our collegiate towns the other day.

"The best in the world" was the answer.

"Well you must admit that their English is barbarous."

"That is Mr. B., surely?" I said to an Old Country gentleman the other day.

"No."

"It looks exactly like him."

"Oh! but it is not. I should have known George, of course; and besides, this man spoke Canadian."

"And pray what is that?"

"Why, did you not know that *were* and *are* are obsolete in Canada? He said 'there *was* three roads on one side, but where he wanted one there wasn't *none* at all.'"

I think there is a remedy for this. If instead of trying to make the theory of grammar so difficult, teachers would practically explain the rules of

syntax, note and correct every mistake made by the scholars as often as thley occur ,and cver and over again, great practical results would undoubted y follow, and this reproach of our people be taken away. All the mistakes to which I have called attention are purely grammatical ones, existing too in a country where every child is taught grammar. They are not dialectic differences such as exist in older lands as survivals of past colonizations or conquests.

E. G. JONES.

Toronto, Sept. 25.

Every teacher who has paid any attention to the subject will sympathize in this protest against the cramping tendency of formal grammar. If the teacher were, in the first place, to pay more attention to the structure of his own spoken language, and, in the second, to inspire his pupils with a desire to speak as correctly as he himself does, "Canadian English" would soon improve. It is of comparatively little importance whether a pupil ever learns all the technicalities of analysis as now taught in the grammars; it is of the greatest importance that each one should become able not merely to avoid gross and vulgar errors in speech but to employ a diction at once elegant and rhythmical. But what improvement can be expected while so many teachers themselves persist in using "lay" for "lie"; "will" for "shall"; and even "have went" for "have gone"? Nor are the collegiate and departmental examinations altogether free from blame for the present unsatisfactory state of affairs. The questions set do not always indicate to students and teachers the best methods of studying English with a view to practical results.

CARE OF PRIMARY CLASSES.*

At what age should a child enter school? This has been so often, and so ably discussed, that I will merely give my opinion in passing that, the age of seven years is quite early enough for any child, and too early for some. Let the brain become somewhat matured before it is burdened with anything but that which it takes up of its own free will. But pupils are sent to us under that age, and it is our duty as teachers to do the best we can for them while under our care.

First make the schoolroom attractive. Let them think they are leaving one home to go to another when they trudge away in the morning, and not only think this, but feel it. This should be the feeling in the mind of the pupils in every schoolroom, but especially where the smaller children are. Inculcate a love for the good and beautiful, by having the room adorned with bright pictures, and lovely sweet-sented flowers. This, of course, should be applied to the outside of the building too. By a little labor the children can make real pictures of the old weather-beaten schoolhouses, and will find much pleasure in their work if encouraged. Each one may have a part to perform in it—the boys doing the heavier work, and the girls the lighter and more artistic. Children will learn all the better with these fair things about them, and acquire a taste and refinement which will sweeten and beautify all their lives; the result of which in the great future no philosopher is wise enough to tell.

Again, in order to make the schoolroom attractive the teacher must be so himself. He should never act so as to give his pupils reason or occasion to think of him, as "the cross old thing," or, "such a scold," but, he should meet them there with a bright, encouraging smile, and send them from him with the same smile, only brighter, never falling into the fault of Goldsmith's Village School-master,—"letting his pupils read the day's disasters in his morning face."

But the teacher must also make the lessons attractive. He must not run away with the idea that he can just teach his pupils to read, write and cipher, for in reality there is not a branch of education into which, to a certain degree, he is not able to introduce them, giving them it is true, the merest elementary crumbs, but crumbs you know are still bread. For instance, suppose the teacher were to take five or ten minutes each day, to tend the houseplants in the schoolroom. He does not wish to loose that time, then why not give his pupils a practical lesson in botany during it. If he has a rule providing that the waterpail be passed round among the pupils after play hours—which I think is a very good one—he can introduce the merest morsels of chemistry and natural philosophy, by making short and simple statements to be remembered by his pupils, of the properties of water, and, he can give them some good ideas as to the laws of health, by never allowing them to drink while warm, or to take a long draught when very thirsty.

The teacher must be careful above all to instruct his pupils in habits of neatness, precision, and order, so thoroughly, that their very action will be influenced by it, and their very walk will show it. He should always be punctual in everything connected with his duties, and demand of his pupils that they be the same. He should have a place for everything, and see that everything is in that place—a time for everything, and see that everything is done at that time. They should be allowed to do nothing in a slipshod, careless manner and they will learn intutively to consider, that while poverty is no disgrace, dirt is a crime. Disciplined thus, his pupils will be drawn insensibly into habits of neatness, despatch, accuracy and order.

Another suggestion I would make here, is the importance of instilling into the minds of the pupils, that they are the coming men and women, who are to make Canada noted for its great, and good, and noble people. Give each one an aim, and ever keep before their minds that, their lives are what they make them, their future what they choose; and, as good boys make good men, so, every day of their school life is determining their future career as men and women. Give them a sense of importance, and the ennobling effect it will have on their minds and actions, will be surprising.

The discipline of the primary classes should be as strict as that of the more advanced. Why? A child has not yet formed any habits in school, either good or bad, therefore, let the first ones be good. Be strict by making certain laws and rules, and never departing from them. Of course every teacher has his own idea as to discipline, and punishment, but my opinion is, that he cannot maintain the one, or inflict the other, with any degree of success, unless he first understands the will and nature, the mind, character and affections, in fact the very heart of each one in his charge; and this can be accomplished only by his becoming as it were one of them, and entering heartily in their pursuits, sharing their pleasures, and sympathising with them in their sorrows, listening patiently to their little troubles, and smoothing them out with as tender a hand, and as patient an attention as a loving mother's would. It is said there is no child so hardened but has some redeeming trait in his character, and in the way just indicated, with close observation the teacher will discover it, and with tact will be able to guide the child to the accomplishment of much good.

There is too little praise and too much censure used in school by the teacher of primary classes. He must not expect children of tender age and most delicate susceptibilities, to prepare their tasks from a sense of duty altogether, but they may be stimulated to make the exertion by means of a little judicious praise. The teacher should have ever on his lips some word of encouragement, not for those who, like the hare are swift and slothful, but for those who tortoise-like are diligent though slow. This praise should not be given unless really merited, and thus, by giving praise where it is due, and never letting an offence go unpunished, the teacher will establish such a strong personal ascendancy over his pupils, that they will be disposed to be guided by him, and not only regard his rules, but, anticipate his wishes, covet his approbation, and shrink from his censure as from an object of the greatest dread.

From a paper read by Miss Marion Samson before the East Kent Teachers' Association.

Notes and News.

MANITOBA.

The Normal school department for the training of teachers for the protestant public schools of Manit ba under E. L. Byington, M. A., and the collegiate department under John Fawcett, B.A., both in connection with the Winnipeg public schools are in full operation, but the attendance at present is not large.

The public school trustees of Portage la Prairie propose to open a collegiate department shortly.

Minnedosa is to build a school house to cost $9,000, and Birtle one to cost $7,000 shortly.

The convocation of the University of Manitoba has elected the Hon. A. M. Sutherland, B.A., A. C. Kellano, B.A., and the Hon. S. O. Briggs, B.A., as its representatives on the Council of the University for the ensuing ' ear.

The graduates of the University now number about 80.

The Rev. D. M. Gordon, B.A., and the Rev. C. Pitblado are two of the seven representatives of Manitoba college on the council of the University, and the Rev. Professor Cluthier has been selected by the authorities of St. Boniface college in place of the Rev. G. Dugast.

The fine New Manitoba college has been completed, and is occupied. Rev. Professor Bryce, M.A., LL.B., principal of the college who was travelling in the old country last year, returned some time ago.

The authorities of St. John's college are considering plans for the erection of a wing of a new college, the proposed wing will cost about $38,000 or including a Professor's residence $45,000. Some very fine plans have been sent in.

TORONTO COLLEGES.

Toronto may fairly lay claim to being regarded as a city of colleges. Too often the political capital of a country fails to secure intellectual pre-eminence. This is notably the case in the United States. There the great colleges, the great journals, the great publishing houses, are all located outside of Washington, which in point of intellectual and artistic life is far surpassed by New York, Boston, and Philadelphia. Toronto is differently situated. It is not merely the political capital of Ontario but is in some respects the intellectual capital of the Dominion. And no phase of its intellectual life is more interesting than that which is connected with its colleges and students. During the summer months the academic halls are deserted, but during the early days of October the dispersed undergraduates reassemble to meet the thinned ranks of old acquaintances recruited from a large array of freshmen.

Besides the public and separate schools. the private schools, convent schools, and church schools—to say nothing of the Collegiate Institute, the Normal and Model Schools, and Upper Canada College—there are located in this city several high class colleges all of which seem to be in a more than usually thriving condition at the beginning of this academical year. First comes

UNIVERSITY COLLEGE.

This is chartered by Act of Parliament and endowed out of provincial funds. It is non-sectarian in function and management and serves as chief feeder for the University of Toronto. For some years past the attendance of students at University College has been rapidly increasing until it has almost outgrown the accommodation afforded by the building, and the increase this year shows no abatement. The attendance at its classes of students from Knox College, Macmaster Hall, and Wyckliffe college—all of which are strictly denominational and theological—is the result of an arrangement which cannot fail to be beneficial to all parties concerned. The divinity students form a large contingent at University College, and they are, while attending it, thrown into contact with others besides members of their own denomination. The importance of University College has been enhanced by the action of Toronto University Senate in accepting its examinations for the first and third years in lieu of their own—a privelege accorded at the same time to all other affiliated colleges.

SCHOOL OF PRACTICAL SCIENCE.

This also is provincial in character, and is closely related to University College. Some of the teachers in the latter institution teach also in the former, or, rather, some of them have their lecture rooms located in the School of Practical Science and their lectures are attended by the students of both institutions jointly. Advantage has been taken of the additional space afforded by a new building to establish chemical and mineralogical laboratories, but much more requires to be done in this direction before the needs of students will be fully supplied. One of the features of the course in the school is the engineering department which has been made as thorough and practical as possible. In these days of mining and railway building such a department is indispensable.

THEOLOGICAL SCHOOLS.

One of the features of the Toronto collegiate system is the tendency of religious denominations to economize their resources by confining their own expenditures to the maintenance of purely theological schools and availing themselves of the facilities afforded by University College for acquiring an excellent literary and scientific training. In this way a cordon of divinity halls has grown up around that institution, including at present the following :—

Knox College. This is a Presbyterian theological school of long standing and high reputation, the session now opening being its thirty-eighth. The theological course covers three years but those students who have not obtained degrees in arts from some university are required to take a preliminary literary and scientific course of three years. This is done chiefly by means of attendance at the lectures in University College in such subjects as are found necessary or expedient. Knox College has in this way been for many years an important ally of Toronto University and University College, for all intending divinity students are strongly urged to go regularly through the arts course for a degree before commencing the study of theology.

Macmaster Hall.—Following the example of the Presbyterians the Baptists have established a flourishing theological school in close proximity to and intimate relations with University College. This is only its second session but the well known liberality and enterprise of the denomination to which it owes its existence will make its future secure. The students of Macmaster Hall, like those of Knox College, take at least part of their literary and scientific course in University College, and are advised to go through the regular curriculum for an arts degree.

Wyckliffe College is a new building tenanted by a comparatively new corporation known heretofore as the "Protestant Episcopal Divinity School." It was formed and is still maintained by the low church party in the Anglican diocese of Toronto. With the character of its theological tuition the public are not concerned, but it is a matter of general interest to know that, like the Presbyterians and Baptists, the Evangelical wing of the Episcopal church recognize the benefit to be derived from intimate relationship with University College. The new building, is like Macmaster Hall, located on property belonging to the University endowment. It has just been completed and will be occupied this session for the first time.

TRINITY COLLEGE.

The university of Trinity College is amongst our older educational institutions. It was founded as an Anglican College and university when King's College was secularized in 1849, and the fact that it is controlled by the high church party is the reason for the establishment of Wyckliffe College. The situation of Trinity is unfavorable to its expansion and there are other reasons which limit the amount of patronage it receives, but it has done good work in its day and with a recently reorganized staff it is capable of doing still more. Trinity College, as a university, has power to confer degrees in the other learned professions as well as in divinity.

ST. MICHAEL'S COLLEGE.

This institution occupies a position distinct from all those already named, inasmuch as it is the only one affiliated to Toronto University, except University College, while it has made provision in its curriculum for only a part of the University course. St. Michael's is under the auspices of the Roman Catholic church, but it is largely, if not entirely, self-sustaining as a collegiate institution. It is well patronised and with the additional prestige conferred by affiliation it may be expected to do still better work and more of it.

MEDICAL SCHOOLS.

Toronto is abundantly supplied with facilities for educating medical practitioners. There are two medical colleges, each of which is well equipped with teachers and is in a position to avail itself of the excellent hospital facilities of a large city which has an average share of accidents. The names of these colleges are the "Toronto Medical School" and the "Trinity Medical School," the former being affiliated with Toronto and Victoria, and the latter with Toronto and Trinity Universities. The attendance at both schools is this year as large as usual, if not more so.

THE STUDENTS.

The students in attendance at all these institutions, supplemented by the law students registered at Osgoode Hall and articled in the different city law offices, form a large and important element in the population of Toronto. They have no reason to complain of want of public interest in their class, for the literary and other entertainments they give are always well patronized and some of them are amongst the social events of the season. Of late years the "guild" spirit has become much more

pronounced amongst the students, but this is not to be regretted if its development is not accompanied by the tendency to boisterous conduct which is so generally associated with the public conception of the average student. There are a few college residences, namely in University College, Trinity College, Knox College, Macmaster Hall, Wyckliffe College, and St. Michael's College; but the number ccommodated in all of these is collectively only a part of the whole, and at the present rate of increase of attendance will soon be an insignificant part. To provide board and lodging during the academical year for so many students is a problem left to be solved very largely by private enterprise and so far the solution has been quite satisfactory. A literary society is one of the ordinary adjuncts of college life in Toronto, as elsewhere, and some of them are very large and flourishing associations. In University College the society is "Literary and Scientific;" in Knox College it is "Literary and Metaphysical;" in Osgoode Hall it is "Literary and Legal.'

Readings and Recitations.

THE RIDDLE.

Fierce and bitter was the struggle,
But the strife at length was o'er,
And the joyful news went ringing,
Ended is the cruel war.
Proudly homeward rode his lordship,
Bold Sir Guy of Atheldare;
Flashed his eyes with pride and triumph
As his praises filled the air.

Every heart was filled with gladness.
Said I, every heart? Ah, no?
Here, amidst this joyful people,
One heart ached with speechless woe:
T'was the little captive stranger,
Claude, the vanquished Norman's son—
Taken prisoner, brought a trophy
Of the victory they had won.

Bravely fought he for his freedom,
And when taken, smiled disdain
As his captors stood around him,
Bound his arms with gyve and chain;
Smiled defiance when they told him
That Sir Guy his life would spare,
Should he serve and swear allegiance
To the house of Atheldare,—

Spurned their offer, while his dark eyes
Spoke the scorn he could not tell,
As he followed without murmur,
To his dreary prison-cell.
Then they left him, and his young heart
Bowed beneath its weight of pain
For a moment. But he rose up,
Calm, and cold, and proud again.

From without the grated window,
In the pleasant court below,
He could see the little princess,
As she wandered to and fro.
Long and eagerly he watched her;
Like a cloud the golden hair
Glanced and rippled in the sunlight,
Framing in her face so fair.

And the little Highland princess,
As if by a magic spell,
Seemed to feel her eyes drawn upward
To the dreary prison-cell;
And the sad, pale face she saw there
Caused the ready tears to start,
While a woman's gentlest pity
Filled the tender, childish heart.

Then a firm resolve rose in her—
Lit the troubled little face.
Not a moment to be wasted;
Breathless, hurrying from the place
On an errand fraught with mercy,
Straight she to her father sped;
Humbly kneeling down before him,
Lowly bowed the dainty head,
While the sweet lips, red and quivering.
Faltered out her anxious plea,
Told her pity for the captive,
Begged Sir Guy to set him free.
But he answered, sternly gazing
On the downcast face so fair:
"Can our daughter doubt the justice
Of the house of Atheldare?

"But we pardon this, and tell you
Of our wise and just decree:
If this captive swear to serve us,
We will spare and set him free."
Then up rose the little maiden
Dauntlessly, without a fear.
"Would you have a traitor serve us?"
Rang her voice out, sweet and clear.

And Sir Guy paused for a moment,
All his anger from him fled,
As he watched her, flushed and eager,
While her cause she bravely plead.
Gravely smiled he as she ended,
Drew her gently on his knee:
"You have conquered, little pleader—
You have gained the victory.

"But your prince must earn his freedom:
Not with bow or spear in hand—
We are weary of the bloodshed
Spread so long throughout the land.
Let him ask our court a riddle:
Six days' grace to him we give,
And the court three days to guess it;
If it fail, he then may live."

Once more in the pleasant court-yard
Danced the little maid in glee;
Surely he could find a riddle
That would save and set him free.
But five long days and five nights passed,
And the prince no riddle gave;
To his brain, all dazed with sorrow,
Came no thought his life to save.

And the little blue-eyed princess
Pondered sadly what to do,
Till at last she sought the counsel
Of her old nurse, tried and true.
"Go," her nurse said, as she finished,
"Go, and search the green fields over,
Never stopping for an instant
Till you find a four-leaf clover.

"Take and put it in a nosegay,
In the centre, full in sight,
Throw it to the little captive;
All I promise will come right."
Out into the merry sunshine,
While her feet scarce touched the ground,
Went the princess, never stopping
Till the treasure she had found.

Threw it with the pretty nosegay,
In the window, barred and grated.
Then, and only then, she paused—
Paused, and hoped, and feared, and waited.
Through the window, barred and grated,
In the dreary prison-cell,
Like a ray of happy sunshine
At his feet the nosegay fell.

As he raised and held it gently,
While the burning tears brimmed over,
Through the mist he caught a glimpse
Of the little four-leaf clover.
Thoughts went dashing through his brain,
And, before the evening dew
Kissed the flowers of the land,
All the court this riddle knew:

Fourteen letters am I made of.
Over countries fair and bright,
Under many different heavens,
Raise we flags, both red and white.

Living with my many brothers,
Ever in the long, sweet grass,
As we play, the happy zephyrs
Fan us gently as they pass.
Chanced you e'er to find me out,
Luck I'd surely bring to you.
Often of me have you heard.
Very often seen me, too;
Ere you turn away from me.
Read me well—my name you'll see.

Three days passed, unguessed the riddle,
And the sun rose joyfully,
Turned the prison bars all golden,
Told the captive he was free.
Life had never looked so radiant,
Earth had never seemed so fair;
Sang the birds and played the fountain,
Sweetest fragrance filled the air.

But the day wore slowly on,
Sank the sun from out the sky
Ere the waited summons came,
And he stood before Sir Guy.
In the stately council there
Knelt he down with peerless grace;
Not a tinge of doubt or fear
In the proud patrician face.

To him, then, began Sir Guy:
"You have earned your freedom well,
And, we pray you, speak the answer
That our court has failed to tell.
Then up rose the little captive,
While his eyes with fun danced over:
"If you read the letters downward,
You will find a four-leaf clover."

And Sir Guy laughed long and loud,
As he read the riddle through,
That the court had failed to guess
With the answer in full view.
So the little prince was saved,
And ere many days were o'er,
Happily he sailed away
Toward his longed-for home once more.

But he carried back a memory
Of a court-yard fresh and fair,
Where there walked a little princess
Radiant with her golden hair.
So my story's almost finished,
And the end I need not tell,—
For of course 't is in the ringing
Of a joyful wedding-bell.

St. Nicholas for October.

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

PEEL.—The regular half-yearly meeting of the teachers' association was held in the lecture room of the Presbyterian church, Brampton, on Thursday and Friday, 8th and 9th June. The attendance was fair and there was considerable interest displayed in the discussion of the various topics presented to the convention. After an interesting and instructive address by the 1st vice-president, Mr. D. McDonald, on "The Senses in their connection with education," a discussion on text-books was introduced by Mr. A. Morton, head master, Brampton public schools. He first pointed out the tendency of our present system towards the right and proper use of text-books, showing that their value as a part of our educational machinery should not be over estimated, nor yet should it be rated too low. He then pointed out some of the most glaring defects of our present series and the urgent necessity for a change. At the close of the discussion a committee was appointed to examine the various series of text-books which have been, or are being prepared, and to report to the association. The election of officers resulted as follows:—Pres., Dr. Law, head master, Streetsville high school; 1st vice-pres., Mr. A. Murray, M. A., head master, Brampton high school; 2nd vice-pres., Mrs. Corbet, Brampton; sec.-treas., Mr. J. P. Hume, B. A. of Brampton high school. Rev. Mr. McLaren, in his address to the teachers, took as his topic "The mighty results of the teacher's influence on the plastic minds of the young." He referred to the teacher's duty to magnify his office, to co-operate with the parent in developing, (1) orderliness in thought and expression as well as in surroundings, (2) perseverance, (3) a strong sense of what is right and honorable. The teacher should endeavor to teach the pupils to be ladies and gentlemen in every sense of the term; strive to develop in them whatever would tend to make them more manly or womanly. At the close of his excellent address Mr. McLaren was tendered a very cordial vote of thanks. Mr. R. Cowling of Malton, in introducing the subject of "Entrance examinations" expressed himself as favorable to pupils remaining at the public schools even after passing the entrance examination. He thought physical education was greatly neglected, especially at our high schools. On these subjects there was considerable discussion. Mr. D. S. Allen, of Mono Road, explained his method of teaching arithmetic in a very clear and simple manner. The chairman then introduced the Rev. G. M. Milligan of Toronto, who delivered a stirring and practical address on the general duties of the teacher. He urged great care in the ventilation of the schoolroom, a proper supervision of the sports on the playground, and every other possible means of developing the physique of the pupils. He strongly recommended frequent common-sense-talks with them regarding dress, diet, etc. The speaker dwelt at considerable length on the necessity of a teacher being thorough, and at the same time original, guarding against every improper tone and look, and cultivating in the scholars, both by precept and example, the grand trait of "Looking not on their own things, but on the things of others." At the close Mr. Milligan was tendered a very hearty vote of thanks which was carried with applause. The whole proceedings were greatly enlivened with vocal and instrumental music.

SOUTH HASTINGS.—The regular semi-annual meeting of this association was held in the central school building on Thursday and Friday, May 25th and 26th. The president, J. Johnston, I. P. S., occupied the chair. The officers were elected with the following results:—President, J. Johnston, I. P. S.; vice-president, Miss J. Jack; sec.-treas., S. A. Gardner; committee of management, J. W. Dafoe, J. W. Rodgers, G. W. Sine, W. J. McCamon, G. S. Wilson and O. S. Hicks. Delegate to provincial association, O. S. Hicks. Prof. Dawson, head master, Belleville high school, gave an excellent address on "Health in the schoolroom," giving some valuable hints on the importance of good ventilation, proper heating and lighting, and out-door exercise. Miss Johnston gave a recitation, and Miss Wilcox sang "The sea is England's glory." Dr. McLellan, senior high school inspector, gave an excellent explanation of the "Application of the principles of symmetry and factoring in algebra." In introducing the subject he alluded to the very great difference between the algebra taught in our schools now, and that taught a few years ago, urged the importance of a thorough knowledge of this subject as a preparatory training for the higher mathematics, and concluded by factoring a large number of examples by applying the principles of symmetry. Mr. D. L. McAinsh gave an interesting paper on "Singing in public schools," which was well received. Miss Harold then sang "Annie Laurie" in an effective manner, after which Mr. G. M. Yerex, by means of wooden balls cut into equal parts, illustrated his method of teaching fractions. An animated discussion followed in which part was taken by Dr. McLellan, H. M. Hicks, M. Davidson and others. In the evening Dr. McLellan delivered an eloquent and stirring address to a large and appreciative audience, on the subject of "National education," Dr. Hope, sheriff of the county, presiding. Second day.—On reassembling Prof. J. S. McMurray played and sang "Little Alice," after which Dr. McLellan took up the subject of "Intellectual methods of teaching elementary arithmetic." He advised the use of objects to convey correct ideas of numbers, and always to proceed from the concrete to the abstract, illustrating in his usual masterly style. Miss Powell read with admirable execution "The fall of the Pemberton Mill." H. M. Hicks, head master, Trenton high school, explained his method of teaching bookkeeping, after which Prof. McMurray sang "The Tar's Farewell." Dr. McLellan then gave an address on "Reading." In introducing this subject he said the objects to be aimed at, are, distinct utterance, clearness of enunciation and a fair degree of expression, and the principal defects to be guarded against are, slurring of the initial and final consonants and shortening of longer vowel sounds. Miss Powell and Prof. McMurray sang a couple of songs which were well received, after which the Rev. H. G. Parker explained his method of teaching Canadian history. Miss Diamond and Miss Bollard sang a duet, entitled "We'd better bide a wee" very effectively. Dr. McLellan then gave an address on "Good and bad questioning." The objects to be attained are (1) to find what the child knows, (2) to fix knowledge in the child's mind, (3) to discover the pupil's difficulties and misapprehensions so as to be able to assist or correct them, (4) to test what has already been taught. Questions should be terse, clear, pointed and not answerable by a single word. The discourse was a very valuable one, and was well appreciated. Rev. J. W. Burke endorsed the Doctor's remarks. Prof. McMurry sang "Kiss and whisper sweet good night" after which a hearty vote of

thanks was accorded Dr. McLellan, endorsed by appropriate speeches from Mr. O. S. Hicks, Jno. Dafoe, Mr. Harvey, Hon. B. Flint, Prof. Bannister, Prof. Metzler, Messrs. I. Diamond, W. Johnston, and T. Holden. The Hon. B. Flint moved a vote of thanks to J. Johnston I.P.S. for South Hastings and Belleville, for the zeal, earnestness and careful painstaking manner in which he had discharged his duties, which was seconded by W. Johnson Esq., of the Belleville board of education. Mr. Johnston made a suitable reply; and after singing "God save the Queen" the institute adjourned.

GLENGARRY.—The half-yearly meeting of the Glengarry teachers' association was held in the brick school house Alexandria, on Thursday and Friday, the 7th and 8th September. Members of the association assembled on Thursday to the number of fifty, including the teaching staff of the Williamstown and Alexandria high schools. As usual the fair sex was largely in the ascendant. The president of the association, Dr. McDiarmid, inspector of public schools for the county, was in the chair on both days of the meeting. An effort had been made by the committee of management to secure a lecture from some leading educationist, but owing to the fact that the matter was not taken up at a sufficiently early date, they were unable to secure one. This will be remedied at the next meeting, the secretary having been instructed to take the necessary steps to secure such valuable assistance. A step in the upward direction was taken at the last meeting with regard to the procuring of the CANADA SCHOOL JOURNAL for the teachers of the county. The secretary succeeded in getting over fifty subscribers to this valuable periodical which will be forwarded to each as soon as the list can be sent on. In many respects the last meeting was one calculated to do a considerable amount of good, many of those present apparently taking a keen interest in the proceedings, and discussing the papers in an animated manner. Among the papers contributed at the last meeting were the following:—Mr. J. D. Lewis, assistant master in the Williamstown high school read a very interesting paper upon "Euclid" treating that somewhat dry subject in a very happy manner. Mr. W. D. Johnston, H. M. H. S., Alexandria, read an instructive paper upon "Elocution" showing the difficulties which stand in the way of good reading and speaking. Miss Annie Ross of Athol gave a paper entitled "Teaching reading to beginners," which was well worthy of the attention of every teacher. Miss Elizabeth Grant contributed a paper on "Composition" which was deservedly eulogized. Besides the papers read, questions were asked and discussions took place upon:—"Formation of time tables," "Desk work," "Importance of reviewing," "Geography for third and fourth classes," etc. The president gave explanations concerning the recent regulations issued by the education department, and also timely remarks upon the subject of "Contagious diseases," and "Treatment of the apparently drowned." The proceedings were agreeably varied by readings by Messrs. W. D. Johnston and Thos. Scales, B. A., of the Williamstown high school. In accordance with a resolution passed unanimously by those present, the secretary was instructed to forward a letter of condolence to the parents of the late Jeremiah McCabe, a member of this association, who was accidentally drowned during the summer. The association then adjourned until the first week in February.

REVIEWS.

BEOWULF. Edited from the text of Heyne by J. A. HARRISON, Professor of English and modern languages in Washington and Lee University. *Boston, Ginn, Heath & Co.* This little volume contains only the text of "Beowulf," but the publishers promise at an early date a glossary for the work. It is something to have the text prepared as Mr. Harrison's has been, and to have it printed as the publishers have done it We trust the editor and publishers will prepare an edition in which the text will be accompanied by judicious notes as well as a glossary, for Anglo-Saxon being to the English student practically a foreign language he needs assistance here quite as much as he requires it in the study of Greek or Latin. How long will it be before our Canadian colleges learn that without a knowledge of Anglo-Saxon good English scholarship is out of the question. We hope soon to see "Beowulf" prescribed as a text book in every Canadian University as well as in similar institutions in the United States.

THE CHORAL CHOIR. BY W. D. PERKINS, MUS. DOC. *Boston: Oliver Ditson & Co.* This is a collection of pieces suitable for choir practice, the former half of the volume being devoted to secular, and the latter to sacred compositions. The work of selection has been well done, as the name of the compiler would warrant, and the veteran publishers have done their part in getting out the work in a neat form and at a low price.

PRACTICAL GRAMMAR: A text book for use in Business Colleges. BY SEYMOUR EATON, of the Winnipeg Business College. *Winnipeg, R. D. Richardson.* This little treatise may be briefly described as one more protest against the fetters imposed by formal grammar. The rules and definitions are literally few and far between, and the intervals are filled up with numerous examples of bad English to be corrected.

EXERCISES IN ENGLISH GRAMMAR AND COMPOSITION. BY DAVID SALMON; *London, Moffatt and Paige.* This, as its name expresses, is not a grammar, but a collection of exercises. The sentences illustrative of the various definitions connected with the parts of speech are numerous and admirably classified, and this remark applies equally well to the exercises n composition. The only part of the collection, that is deficient is the department devoted to errors for correction which occupies only two pages whereas from its relative importance it should have had many times that number. Teachers will find the work extremely useful as a repertoire of sentences when they are too busy to construct them themselves. Two features are worthy of special notice: (1) that the collection is not based on any special grammar, and (2) that the sentences are taken largely from classic writers.

THE READER'S GUIDE TO ENGLISH HISTORY. BY W. F. ALLEN M.A. *Boston, Ginn, Heath & Co.* The object of the compiler of this little work is to give in a compendious form a full list of the works illustrative of the successive periods of English History. The general plan is that of four parallel columns the first of which on each page is taken up with a genealogical tree of the Royal Family: the second, with a list of historical works relating to the period; the third, novels, poems, and plays illustrating the same era; and the fourth, the same class of works illustrating contemporary history. When this plan is varied it is in order to introduce matter to the student's advantage. The plan is ingenious and it has been well executed.

MAGAZINES.

ST. NICHOLAS for October is above the average; one of its best pieces has been this month transferred bodily to our columns. The announcement for 1883 is an extremely tempting one. *St. Nicholas* should be taken into every family where there are boys nd girls. It forms one of the best antidotes for the yellow-covered sensational literature which has such a pernicious effect on the young.

THE WHEELMAN is a new magazine published in the interest of bicycling, by the "Wheelman Co.," of Boston. The magazine is got up in the style of the *Century* and the first number is spiritedly edited. A long list of contributors is published and if they only fulfil the promise of their names the future of the venture may be considered as assured, for the number of bicyclers is now "legion."

THE ATLANTIC MONTHLY for October begins with a very readable description of a day among the Sabine Hills by Harriet W. Preston. The article is sufficiently profuse in Horatian allusions to be interesting to the classical scholar without seeming pedantic to the ordinary reader. A characteristic little poem by Whittier forms the transition to a descriptive account by Horace Scudder of one of the less known English artists, Frederic James Shields. "Studies in the South" is continued through part VIII and "The House of a Merchant Prince" through parts XIX and XX. Mr. Cushing gives a highly interesting account of "The Nation of the Willows," a small tribe of Indians inhabiting one of the Arizona canyons. One of the most valuable papers is that by W. T. Hewett on "University Administration" an article which contains information calculated to be useful to those entrusted with the management of colleges and universities in Canada.

HARPER'S MONTHLY is profusely illustrated as usual. The first paper is the second instalment of a tour through Surrey in England in the course of which Mrs Lillie introduces the reader to a gypsy camp and to a band of strolling players performing in a rural district. "Flash; the Fireman's story" is an admirable specimen of genuine American humor. "Flash" is a played-out fire horse who has been sold to a milkman. The "ruling habit" is strong in him however and after a rush to a fire at the expense of his masters property he

"moped an' wilted an' dawdled—faded away once more,
Took up his old occ'pation of votin' life a bore;
Laid down in his harness, and—sorry am I to say,
The milkman he had drawn there drew his dead body away."

"Medical Education in New York" is illustrated with portraits of leading medical professors some of whom are well known to Canadian ex-students. The appreciative sketch of Dante Gabriel Rossetti comes opportunely as a set-off to the effort of Mr. Oscar Wilde to take to himself the credit for the æsthetic movement. Rossetti was the real *Coryphæus* of a school of which Morris, Swinburne, and Burne Jones are all more distinguished members than Mr. Wilde. Of the other articles the more important are "Southern California," "The Spanish Discoveries," and "Symmes and his Theory,"

THE CENTURY has for frontispiece a fine portrait of the greatest of the United States Presidents, Abraham Lincoln. "Life in a Mexican Street" is as fascinating in letter press as in illustrations. "The Gibraltar of America," full of life-like representations of quaint scenes and striking scenery makes this number a peculiarly interesting one to Canadians. To those who have read the story of Garfield's nomination the account of "How Lincoln was nominated" will be doubly welcome. One of the most diverting papers in an excellent number is Mr. Barrow's admirably illustrated description of "A Georgia Corn-shucking."

THE NORTH AMERICAN REVIEW for October has the usual amount of thoughtful reading on important social topics. Those who are interested in the "Marmion" controversy should read Mr. Frothingham's paper on "The Morally Objectionable in Literature," in which the distinction between the immorality that is fatally injurious and that which is comparatively harmless though still objectionable is ably drawn. "Safety in Railway Travel and "The Protection of the Forests" are both interesting.

HARPER'S YOUNG PEOPLE for October comes full of good things in type and beautiful engravings. *Young People* as a source of entertainment for young people has no superior and few rivals.

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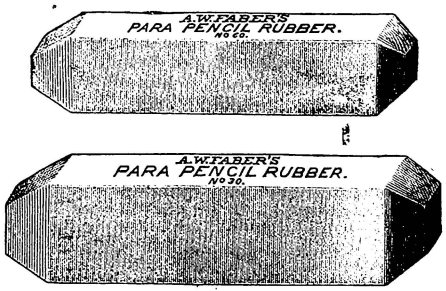

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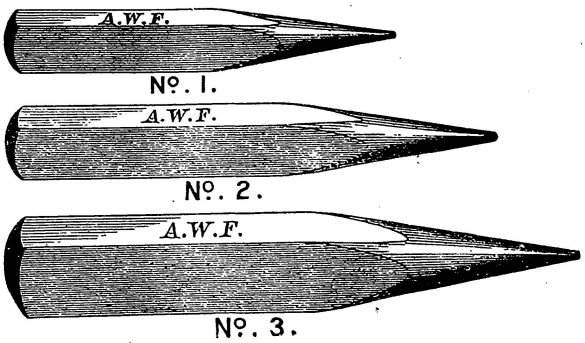

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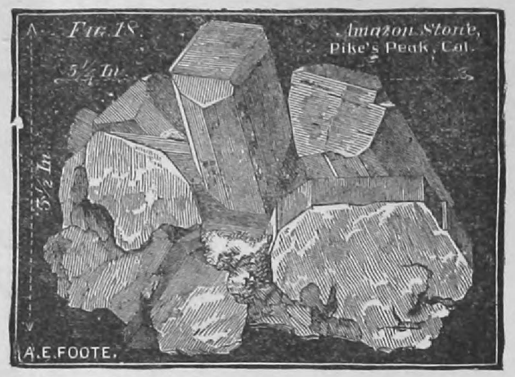

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VOL. VII. TORONTO, NOVEMBER, 1882. No. 65.

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Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course, unable to make any distinction in a list containing names from all parts of the United States and Canada.

THE SCHOOL JOURNAL.

We call the attention of all who are interested in school work to the advertisement in this issue of the terms on which we are prepared to supply the SCHOOL JOURNAL for 1883.

We propose to make the SCHOOL JOURNAL during the coming year still more worthy of support. We are about to combine with it the SCHOOL EXAMINER and in this way make it more useful than ever to the teacher. In addition to our other departments, which will be kept up regularly, we have started this month an entirely new one, dealing with uniform district examinations. This has been placed under the charge of a thoroughly competent editor whose experience as a public school inspector fits him in a very special manner for the work.

Those teachers who find the SCHOOL JOURNAL helpful to themselves will do the publishers a favor by bringing it under the notice of others who do not take it. In this way they will benefit their fellow-teachers and do much towards improving the condition of our schools by the diffusion of practical knowledge and the introduction of improved methods.

GAGE'S PRACTICAL SPELLER.

Correct typography is of the greatest importance in school books, and it is more necessary in the speller than in any other except the dictionary. It has been the earnest desire of the publishers of the "Practical Speller" to make it absolutely free from errors and in this they believe they have succeeded. The proof sheets have been subjected to the most thorough revision by different persons, one of them a skilled proof reader who has worked on both Worcester's and Webster's dictionaries. With a view to the detection of defects in the latest edition, if such there be, they offer a reward of one dollar for each word found to be incorrectly spelt, the reward to go to the first person who calls attention to any particular error.

The best answer to the attempt of the literary "Smellfungus" of the *Educational Monthly* to prejudice the book is the fact that though it is only a year and a half since its first publication, the sixth edition is now on the press. The last edition was one of 5000 copies, and these have all been disposed of within three months. No book ever issued from the Canadian press has met with more signal approval from teachers than this. We refer to these matters, not for the purpose of advertising a book that needs no special notice, but to defeat the sinister purpose of a hireling scribbler, whose remarks of last month show that he is willing to wound but afraid to strike.

RECENT NORMAL AND MODEL SCHOOL CHANGES.

The changes which have recently been made in the function and organization of the Provincial Normal and Model Schools call for a brief notice. For years past the institutions at Toronto and Ottawa have been running independently of each other, each in its own groove. Working under the same general regulations, there was still room for considerable diversity of method, and, as a matter of fact, a good deal of diversity existed. Teachers trained at one institution might go into professional work with views on some important points quite different from those trained at the other. A little diversity of method is not in itself a bad thing; but, in the work of training teachers, all of whom have to work under the same system, it is just as well to have them trained under conditions as nearly as possible identical. Diversity will make itself sufficiently manifest afterwards.

With a view to securing the desired uniformity in the work of the Normal Schools, they have, as we have already mentioned, been both placed under the directorship of the senior High School Inspector, Dr. McLellan. As a further step in the same direction, the mathematical mastership has been restored to the Ottawa Normal School, and the post has been filled by the appointment of W. Scott, B.A., who has for many years held the position of Head Master of the Toronto Model School. Of Mr. Scott's fitness for his new sphere it is unnecessary to say much. He has made for himself a record as a teacher of which any of his *confreres* might be proud, and his name has become familiar to both teachers and pupils as one of the authors of Kirkland & Scott's "Elementary Arithmetic"—the best and most successful work of the kind now before the public. While engaged in the work of teaching, Mr. Scott passed the annual examinations in the University of Toronto, and graduated in that institution with more credit than attaches to the average student who enjoys the privilege of attending collegiate lectures. His past record

justifies us in predicting that his promotion to a higher and wider sphere of usefulness will have a marked effect on the professional character of those teachers who are fortunate enough to come within the sphere of his influence.

Mr. Scott's place as Head Master of the Toronto Model School has been taken by C. Clarkson, B.A., who is, like his predecessor, a graduate of the University of Toronto. His favorite subject is mathematics, and his fellow-teachers have frequently benefited by his knowledge and skill through the columns of the CANADA SCHOOL JOURNAL, to which he has been a frequent contributor. Mr. Clarkson was an experienced and successful public school teacher before taking a university course. Since graduation he has had charge of the Brockville County Model School and of the Seaforth High School, in both of which he added to his professional reputation as well as his experience. He enters his new sphere with the brightest prospects of success, and with the best wishes of his fellow-teachers, amongst whom he has always been exceptionally popular.

QUEEN'S COLLEGE.

Under the energetic superintendence of the Rev. Principal Grant there is little danger of Queen's standing still. Whenever he wants funds he makes a point of saying so, and he generally manages to say it in such a way that the money is forthcoming. He is equally prompt and impartial in securing good men to fill vacancies in his staff. A few months ago the chair of classics, rendered vacant by the lamented death of the late Professor Mackerras was filled by the appointment of John Fletcher, M.A, a Canadian with an Oxford training. Recently two more appointments have been made which can hardly fail to raise the reputation of Queen's. The venerable Dr. Williamson, who has long filled the chair of Physics, having retired from active service in connection with it, his place has been taken by D. H. Marshall, M.A., F.R.S.E., who comes with the very highest recommendation and with a good deal of professional experience. After serving for some time as assistant to Professor Tait in Edinburgh University he spent seven years in the Japanese Imperial College at Tokio. Professor Dupuis, who has had for some years both Mathematics and Chemistry under his charge, is relieved of the latter by the provisional appointment of George McGowan, F.R.S.E. This will enable the staff to do better for the students in both departments.

THE "MARMION" CONTROVERSY.

Now that the discussion about "Marmion" as a high school text has come to an end it may be not unprofitable to inquire what has been gained by it from an educational point of view. During the controversy much has been said that had better have been left unsaid, but on the whole much good has been done, and not a little useful light thrown on one important department of secondary education, the study of English.

The agitation about "Marmion" grew out of the objections urged against it by representative clergymen of the Roman Catholic church, these objections being based on the fact that certain passages of the poem contain representations of Roman Catholicism insulting to the adherents of that persuasion. To insist that Roman Catholic candidates for the teachers' and the intermediate examinations should study critically a text so offensive to them was felt by the Education Department to be unjust, and for this reason the Minister of Education has allowed an option between "Marmion" and "Goldsmith's Traveller." Had he done so at the outset the prolonged controversy might have been avoided, but it was deemed advisable to allow the Senate of Toronto University to take action first as it was primarily responsible for the selection of the book. The Senate declined to make any allowance for scruples, however, and this left the Department free to act on its own responsibility with the result above stated.

The questions raised in the controversy were (1) whether the objections to "Marmion" urged by the Roman Catholic hierarchy were reasonable, and whether the Archbishop of Toronto had a right to a hearing as the representative of his church; (2) whether the remedy proposed by the Department of Education is the one most likely to suit the case; and (3) whether "Marmion"—and Burke's "Reflections" may be named with it in this connection—is, apart from questions of religion and morality, a suitable text-book for the intermediate and matriculation course. These we propose to consider briefly in the order in which they are stated.

1. Every reasonable man, especially if he knows anything about the constitution of the Roman Catholic church and the relation of the hierarchy to the laity within it must at once concede the propriety of any complaint about text-books coming through the highest dignitary of the church in the Province. Those who felt it a grievance to be compelled to read "Marmion" did the most natural thing when they consulted Archbishop Lynch about the matter, and it was equally natural and proper that he should state their objections to the Department. If he misstated the views of his people that is his own and their affair; if he stated their views correctly the outside public have no right to refuse to hear the complaint simply because he was the mouthpiece of his church.

Nor, we imagine, can there be much diversity of opinion as to whether the objection, when properly understood is a reasonable one. Much of what has been written on the subject has been aside from the real issue here. The objection urged has not been so much that "Marmion" is immoral—though we know of Protestant high school masters who think it quite unfit to be read in class even on this ground alone—as that it is offensive to a large and respectable religious body who have the same rights in the high schools as all other denominations have. There could not have been any intention to insult the Roman Catholics by making such a selection, but when the book is found to be objectionable it is reasonable and proper to endeavor to find a remedy.

2. Has the Minister of Education found the best remedy? He proposes to allow those who object to "Marmion" to read instead of it the "Traveller." This will enable those who have purchased editions of "Marmion", or may desire to use them, to go on and do so; it will at the same time enable

those who cannot use it to provide a substitute book at the least possible expense, for the "Traveller" was in use in 1880 and will come into use again next year by the ordinary rotation of texts. We have the best of reasons for stating that this arrangement will be satisfactory to those who raised the objections, and as the freedom of others is not interfered with they cannot have any ground of complaint. As the Departmental examinations are not competitive there can be no difficulty in the double examination in literature except the extra work of preparing a second paper.

3. The most important question of all is whether, apart from religious considerations, "Marmion" and the "Reflections" are good texts for high school or matriculation purposes. We are strongly of the opinion that they are not, and we are confirmed in this view by the opinions of many high school teachers and others whose judgment and experience make them safe guides in such matters. We believe that very little of Burke's literary work is suited for juvenile study and that it would have been difficult to select anything less appropriate than his strictures on the French Revolution. The whole tone of the pamphlet is bad politically, and it has the great defect of doing the author a serious injustice. It was the production, not of Burke the liberal and tolerant political philosopher in the full vigor of his intellect, but of Burke the morbid old man with mind all but unhinged and perceptions either obtuse or warped. And the style is as unsuitable as the matter and spirit. At his best Burke was apt to lapse into turgidity, and in the "Reflections' he is hardly ever anything but turgid. From this cause alone, to say nothing of the complete falsity of his point of view, it is one of the most wearisome of literary productions. If a piece from Burke must be had it would be much better to select passages from some of his noble speeches in favor of the right of the American colonists to political freedom, with the loss of which they were threatened during the earlier part of his public career.

"Marmion" also is open to the objection of being wearisome It is too long for critical study, and it always spoils a poem to select a piece of it when it is in itself a complete work of art. One might as well attempt to estimate a painting by selecting a few square inches for study. "Marmion" contains some of Scott's best poetry and some of the most trashy he ever wrote. It is spun out to such a length and is so purely narrative that there is nothing in it to study. *Marmion* himself is a prosaic scoundrel who endeavors by forgery to ruin an honorable rival and lives a licentious life. There is not a fine character in the book, the best being *Clare's*, and she is all but a nonentity. Linguistically the poem is not valuable as a study. There are many archaic words but Scott's archaisms are all of one class and such words, when mastered, add no valuable element to a student's vocabulary. After a critical study the introductions to the cantos will be almost the only parts that furnish any lasting possession and this is saying little for the work. In the range of modern English literature something far more suitable than "Marmion" might surely be found for such a purpose. In several respects, to say nothing of what is likely to offend on religious grounds, even the "Lady of the Lake" is superior to it.

A USEFUL RECIPE.

Mr. Burke, a teacher in South Hastings, brought before the notice of his fellow teachers in that district at a recent convention the following recipe for making an excellent substitute for more costly copying presses. Take one pound of glycerine, four ounces of French glue, and one pint of water; melt them together in a pan over a fire, and when the mixture is thoroughly dissolved pour it into a shallow tin dish large enough in superficial area for the paper to be used in making copies. The tin dish should be carefully made with sides as straight and corners as square as possible. In writing the original to be copied use aniline ink and press the written sheet gently on the smooth surface of the gelatinous mass in the dish. When taken off it leaves a well-defined impression in ink, and by pressing blank sheets on the same surface scores of copies can be made from the one impression. This cheap press can be made very serviceable by the teacher in the production of papers for conducting written examinations.

NEW READERS,

We notice that at the conventions now held the question of new reading books is a prominent topic of discussion, the usual practice being to refer the different series to a committee for inspection. To this plan we have no objection, but it would be well for the teachers to bear in mind these two facts: (1) that while Gage's "Canadian Readers" are now complete up to the end of the fifth book there is no other series at all approaching that condition; and (2) that while the prices of the various members of the "Canadian" series are given no announcement has yet been made as to the price of either the "Royal Canadian" or the "Royal" series. The various numbers of the "Canadian" series are sold at the same price as corresponding numbers of the present series, and conventions, before expressing any opinion as to the merits of the different books, would do well to ascertain the prices of all. It is clear that cost must always form an important element in the reading book problem.

—We commence this month the publication in the SCHOOL JOURNAL of a little work entitled "The Problem of Teaching to Read." It is from the pen of one of the ablest educationists of the present day, J. M. D. Meiklejohn, M.A., Professor of the theory, history, and practice of education in the University of St. Andrews. The problem of teaching beginners to read is the most difficult the teacher has to encounter, and no one has done more to simplify that problem than Professor Meiklejohn has done in his little treatise. To his other qualifications he adds that of being a distinguished philologist, and, without any exhibition of pedantry, he throws, by means of his scientific knowledge, a good deal of light on the history and peculiarities of our perplexing English orthography.

MILLAR'S "MARMION."

Afraid to venture on a criticism of Mr. Millar's high school edition of "Marmion" and the "Reflections," in the columns of their own journal, the clique who run it have taken refuge in the columns of one of the daily papers in this city. We do not propose to notice in detail criticisms so reckless that they could not have found a place in the columns even of the *Educational Monthly*, especially since the latter has made the discovery that it vegetates in a very frail glass house. Sneers about style will not for some time to come be very common in its columns; but anything is good enough, apparently, for a daily paper. That we have traced the critique to its true source is manifest from the fact that numbers of the issue containing it were sent to high school masters in different parts of the province. In view of this attempt to injure Mr. Millar, we have much pleasure in calling attention to the character of the notices contained in one of our advertising pages. We venture to say that no stronger or more commendatory remarks have ever been made by so many competent judges about any book ever published in this country. Mr. Millar has indeed good reason to feel gratified with the warm appreciation of his editorial labours by his fellow-teachers, and, for the information of others, we have only to add that he has further cause for gratification in the fact that his is the only edition of "Marmion" which finds its way, to any considerable extent, into the schools. This is the real source of the bitter animosity shown towards him by those who are interested in less salable editions.

—A correspondent of the London (Eng.) *School Guardian* recently gave amongst other reasons why the Kindergarten system should not be adopted in the Church of England schools, the following two which are worthy of special notice: (1) that Froebel's system is detrimental to the infant mind from the religious point of view, and (2) because it is not calculated to give the best intellectual training. Religious truth, he holds, is the most important of all, and as that can be communicated only by dogmatic teaching, it is a bad thing to train children to believe only what is demonstrated to them. "A questioning and reasoning spirit," he says, "is quite the last phase of mind I should wish to cultivate in infants." If this were the view taken by the church school teachers generally we should expect those schools to decline very rapidly in popularity and efficiency. He does not "approve of the idea that lessons should be so easy." It is only by being allowed to surmount difficulties that the child can be trained for the duties and trials of life which it will have to face sooner or later without assistance. There are ways and ways of teaching pupils to surmount difficulties, but it is safe to say that those practised by a good Kindergarten constitute not the least effective training for after life.

The first requisite is to teach the child to recognize words. Forming sentences goes hand in hand with the learning of new words; these sentences are written, and composition or pencil-talking is the result. Proceeding from objects to names teaches definitions; words are understood and become part of the child's vocabulary. The skilful teacher will give the child a broad basis of language.

Mathematical Department.

EXAMINATION FOR GRAMMAR SCHOOL PRINCIPALS.

CHICAGO, NOV. 19, 1881.

MATHEMATICS.

1. Define quadratic equation; a pure or incomplete quadratic; an affected quadratic. Define both kinds of progression, illustrating each.

2. A gentleman has two square rooms whose sides are to each other as 2 to 3. He finds that it will require 20 square yards more of carpeting to cover the floor of the larger than of the smaller room. Required the length of a side of each room.

3. Given $x^{\frac{2}{3}}+3x^{\frac{1}{3}}=10$. Find x.

4. $110 was divided among a certain number of persons. If each person had received $1 more he would have received as many dollars as there were persons. How many persons were there?

5. The sum of the first and third of four numbers in geometrical progression is 10, and the sum of the second and fourth 30. What are the numbers?

6. Describe the process of constructing a triangle whose given sides are m, n, and o.

7. How are the surface and volume of a cylinder, of a cone, and of a sphere found? Give the reasoning employed in the last case.

8. There is a cone 12 inches high, and 8 inches in diameter. An auger, $2\frac{1}{2}$ inches in diameter, entering at the centre of the cone's base, bores a hole perpendicular to the base to the depth of 5 inches. Required, the volume of the cone remaining.

9. Define a spherical triangle, a spherical wedge, great and small circles. What measures the shortest distance from one point to another on the surface of a sphere?

10. Describe and illustrate by diagram the trigonometrical process of finding the distance of an inaccessible object from a given point.

VICTORIA UNIVERSITY MATRICULATION, SEPTEMBER, 1881.

ALGEBRA—PASS.

Examiner—J. A. McLellan, LL.D.

1. Multiply $2x-3y-4(x-2y)+5[3x-2(x-y)]$ by $4x-(y-x)-3[2y-3(x-y)]$.

Answer: $(3x+15y)(14x+2y)=6(x+5y)(7x+y)=$ &c.

2. Divide $a^3+b^3+c^3-3abc$ by $a+b+c$. From the result write down the quotient arising from the division of

$$a^3-b^3-c^3-3abc \text{ by } a-b-c.$$

Answer: $a^2+b^2+c^2-ab-bc-ca$.

Now, in this result we have simply to write $-b$ for b, and $-c$ for c, seeing that the second dividend is obtained from the first, and the second divisor from the first divisor by changing the letters thus.

Answer: $a^2+b^2+c^2+ab-bc+ca$.

3. When is a quantity said to be symmetrical in respect to a and b? With respect to a, b, c?

Simplify $(x+y+z)^3+(x+y-z)^3+(y+z-x)^3+(z+x-y)^3$.

See McLellan's Algebra, chap. II.

See May number, page 103, problems 8 and 9.

Answer: $2(x^3+y^3+z^3)+6(x^2y+x^2z+y^2x+y^2z+z^2x+z^2y)-12xyz$.

4. Show that $(x^2+6xy+4y^2)^5+(x^2+2xy+4y^2)^5$ is exactly divisible by $(x+2y)^2$.

We know that a^5+b^5 is divisible by $a+b$, hence this given expression is divisible by $(x^2+6xy+4y^2)+(x^2+2xy+4y^2)$, *i.e.*, by $2(x^2+4xy+4y^2)$, or by $2(x+2y)^2$.

5. Resolve into factors $4x^4+y^4-8\frac{1}{4}x^2y^2$; x^4+2x^3+6x-9; $px^3-(p+q)x^2+(p+q)x-q$; a^8-16b^4.

$$A=(2x^2-y^2)^2-17\left(\frac{xy}{2}\right)^2$$

$\therefore$ the factors are $2x^2-y^2\pm\frac{1}{2}xy\sqrt{17}$

$$B=(x^4-9)+2x(x^2+3)=(x^2+3)(x^2+2x-3)$$

C Observe that p or q is involved only in a single dimension. Hence arrange with p or q as letter of reference. See McLellan's Algebra, "Factoring by Parts," p. 80.

$\therefore\ p(x^3-x^2+x)-q(x^2-x+1)$

$= (x^2-x+1)(px-q)$

D $= (a^4)^2-(4b^2)^2=(a^4+4b^2)(a^4-4b^2)$

$= (a^4+4b^2)(a^2+2b)(a^2-2b)$. N.B.—It is possible to split the quantity a^4+4b^2 into factors by adding $4a^2b$ and subtracting $4a^2b$ but the coefficients are no longer rational quantities.

6. If $9x^4-30x^3y+Qx^2y^2-10xy^3+y^4$ is a perfect square, find the value of Q.

Answer: $Q=31$.

By inspection, thus: $9x^4$ is the square of $3x^2$; twice the product of this into the next term of the root must give $-30x^3y$, $\therefore$ the second term of the root is $-5xy$. The y^4 is the square root of y^2, and as the $10xy^3$ is $-$ while the $5xy$ is $-$ it is evident that the y^2 must be $+$. Thus the root must be $3x^2-5xy+y^2$, from which it follows by squaring that the coefficient of x^2y^2 must be $25+6$ or 31.

7. If $u=\frac{1}{2}\left(x+\frac{1}{x}\right)$, and $v=\frac{1}{2}\left(y+\frac{1}{y}\right)$, find the value of

$$uv-\sqrt{1-u^2}\,\sqrt{1-v^2}.$$

Since $u=\dfrac{x^2+1}{2x}$, $1+u=\dfrac{(x+1)^2}{2x}$, and $1-u=-\dfrac{(x-1)^2}{2x}$

$\therefore\ 1-u^2=\dfrac{(x^2-1)^2}{4x^2}(-1)$ and $\sqrt{1-u^2}=\dfrac{x^2-1}{2x}\sqrt{-1}$.

And by symmetry $\sqrt{1-v^2}=\dfrac{y^2-1}{2y}\sqrt{-1}$

$\therefore\ \sqrt{1-u^2}\cdot\sqrt{1-v^2}=\frac{1}{4}\left(x-\frac{1}{x}\right)\left(y-\frac{1}{y}\right)(-1)$.

Hence given expression $=\frac{1}{4}\left(x+\frac{1}{x}\right)\left(y+\frac{1}{y}\right)+\frac{1}{4}\left(x-\frac{1}{x}\right)\left(y-\frac{1}{y}\right)$.

Reducing down we get $\frac{1}{4}\left(xy+\dfrac{1}{xy}\right)$ Answer.

8. Solve the equations:—

(1) $\dfrac{x+a}{x-a}-\dfrac{x-a}{x+a}=\dfrac{x+b}{b-x}+\dfrac{x-b}{x+b}$.

(2) $\sqrt{\dfrac{x-2}{x+2}}+\sqrt{\dfrac{x+2}{x-2}}=4$.

(3) $\dfrac{x+a-b}{x-a+b}=\dfrac{a(x+a+5b)}{b(x+5a+b)}$.

(4) $(x+y)(x^2+y^2)=a$; $x^2y+xy^2=b$.

(1) Complete the divisions expressed by the fractions. The quotients cancel. Thus:—

$$2a\left\{\frac{1}{x-a}+\frac{1}{x+a}\right\}=-2b\left\{\frac{1}{x-b}+\frac{1}{x+b}\right\}$$

i.e., $a.\ \dfrac{2x}{x^2-a^2}=-b.\ \dfrac{2x}{x^2-b^2}$ $\therefore\ 2x=0$, and $x=0$, one root.

also $\dfrac{a}{x^2-a^2}=\dfrac{-b}{x^2-b^2}$, whence $x^2=ab$, $x=\sqrt{ab}$.

(2) Clear of fractions and we have

$$(x-2)+(x+2)=4(x^2-4)^{\frac{1}{2}}$$

$$x=2(x^3-4)^{\frac{1}{2}}.\ \text{Squaring}$$

$$3x^2=16,\ \therefore\ x=\pm\tfrac{4}{3}\sqrt{3}.$$

(3) Adding and subtracting numerators and denominators

$$\frac{x}{a-b}=\frac{x(a+b)+10ab+a^2+b^2}{x(a-b)+(a^2-b^2)}$$

$$\therefore\ x=\frac{x(a+b)+10ab+a^2+b^2}{x+(a+b)}$$

Clear of fractions and cancel, and we have $x=\sqrt{a^2+10ab+b^2}$.

(4) Take first equation and add twice second, and we get

$(x+y)^3=a+2b$, or $x+y=(a+2b)^{\frac{1}{3}}$

$\therefore$ from first $x^2+y^2=a\div(a+2b)^{\frac{1}{3}}$

and from second $2xy=2b\div(a+2b)^{\frac{1}{3}}$

$\therefore\ (x-y)^2=(a-2b)\div(a+2b)^{\frac{1}{3}}$

i.e., $x-y=(a-2b)^{\frac{1}{2}}\div(a+2b)^{\frac{1}{6}}$,

But $x+y=(a+2b)^{\frac{1}{3}}$. Whence by addition and subtraction we have the values of x and y.

9. The product of the sum and difference of a number and its reciprocal is equal to $3\frac{3}{4}$, find the number.

Let x and $\dfrac{1}{x}$ be the number and its reciprocal,

Then $\left(x+\dfrac{1}{x}\right)\left(x-\dfrac{1}{x}\right)=\frac{15}{4}$

i.e. $4x^4-15x^2-4=0$

$\therefore$ $x^2=4$ or $-\frac{1}{4}$

and $x=\pm 2$, or $\pm\frac{1}{2}\sqrt{-1}$.

10. Simplify $\left(x^{\frac{1}{5}-\frac{1}{7}}\right)^{\frac{2}{3}}\left(x^{\frac{1}{7}-\frac{1}{3}}\right)^{\frac{2}{5}}\left(x^{\frac{1}{3}-\frac{1}{5}}\right)^{\frac{2}{7}}$; and extract the square root of $2x+\sqrt{3x^2-y^2}$.

(*a*) Expression $=\left(x^{\frac{1}{15}-\frac{1}{21}+\frac{1}{35}-\frac{1}{15}+\frac{1}{21}-\frac{1}{35}}\right)^2$

$=(x^0)^2=(1)^2=1$.

(*b*) Observe that $(2x)^2-(3x^2-y^2)=x^2+y^2$, which is not a perfect square. Hence the result will be more complex than the given expression. If the coefficient of $3x^2$ were changed to four we should get y^2 instead of x^2+y^2, and the criterion would hold. We might then put the square root of the expression $=\sqrt{m}+\sqrt{n}$, &c., &c. See Hamblin Smith's Algebra, Canadian Edition, p. 227.

11. Find a number expressed by two digits whose sum is 10; and such that if 1 be taken from its double the remainder will be expressed by the same digits in reversed order.

Let $x=$ units and $y=$ tens.

$\therefore\ x+y=10$ and $10y+x=$ the number.

Also $2(10y+x)-1=10x+y$. Two simple equations from which we get $x=7$, $y=3$ and number $=37$.

CAMBRIDGE ENG.—PREVIOUS EXAMINATIONS.

ALGEBRA. (Higher.)

1. Find a formula for the sum of the first n terms of an arithmetical progression of which the first term is a and the common difference b.

The first term of an arithmetical progression is 3 and the third term 9, find the sum of the first 20 terms.

2. Prove that the sum of a geometrical progression of which the first term is a, the common ratio r, and the last term l, is $(rl-a)\div(r-1)$.

The sum of a geometrical progression, whose common ratio is 3, is 728, and the last term 486; find the first term.

3. The sum of three numbers in A. P. is 21 and their product is 315; find the numbers.

4. Sum to n terms and, when possible, to infinity the following progressions: (*i*) $9+5+1-3-$&c. (*ii*) $4-3+\frac{9}{4}-\frac{27}{16}+$&c. (*iii*) $\frac{1}{3}+\frac{1}{2}+\frac{3}{4}+\frac{9}{8}+$&c.

5. Prove that $(x-y)(1-az-aw+azw)+(y-w)(1-ax-az+axz)=(1-axz)(1-y-w+ayw)-(1-azw)(1-x-y+axy)=(x-w)(1-ay-az+ayz)$.

6. Prove that if $x=a+d$, $y=b+d$, $z=c+d$, then $x^2+y^2+z^2-yz-zx-xy=a^2+b^2+c^2-bc-ca-ab$.

7. Two passengers have together 500lbs. of luggage, and are charged 5*s.* and 5*s.* 10*d.* respectively for the excess above the weight allowed. If the luggage had all belonged to one of them he would have been charged 15*s.* 10*d.* How much luggage is a passenger allowed free of charge?

8. Define a logarithm; and find the logarithms of (*i*) $\sqrt{2}$, (*ii*) 4, (*iii*) 16, (*iv*) 64, to the base 16.

Given that, to base 10, log 2 $=0\cdot301000$, and log. 3 $=0\cdot4771213$, find the logarithms of (*i*) 72, (*ii*) 14·4, (*iii*) ·00015 and (*iv*) $\{3\cdot5^4\div\sqrt{2}\}^{\frac{1}{3}}$.

9. Define the characteristic of a logarithm, and state the rules by means of which the characteristic of a logarithm to base 10 of any given number may be written down by inspection. Divide 5·3010300 by 9. What is the integral part of the logarithm of (*i*) 200, (*ii*) $\frac{1}{300}$ to the base 11?

Using the value of log. 2 given in the previous question, determine how many cyphers there are between the decimal point and the first significant figure in $(\frac{1}{2})^{1000}$.

RESULTS.

1. 630. 2. 2. 3. 5, 7, 9. 4. (*i*) $n(11-2n)$; (*ii*) $\frac{16}{7}\{1-(-\frac{3}{4})^n\}$, $\frac{16}{7}$; (*iii*) $\frac{2}{3}\{(\frac{3}{2})^n-1)\}$. 7. 120 lbs. 8 (*i*) $\frac{1}{8}$; (*ii*) $\frac{1}{2}$; (*iii*) 1; (*iv*) $\frac{5}{2}$. (*i*) 1·8573326; (*ii*) 1·1583626; (*iii*) $\bar{4}$·1760913; (*iv*) 1·1998692. 9. $\bar{1}$·4778922. (*i*) 3; (*ii*) -2. 301.

ARITHMETIC. (Selected.)

1. A grain dealer bought 1300 bushels of wheat and sold $\frac{1}{5}$ of it at a profit of 5 per cent., $\frac{1}{3}$ at 8 per cent. profit and the rest at 12 per cent. profit. Had he sold all at a profit of 10 per cent., his gain would have been \$16.68$\frac{1}{3}$ more. Find the cost price of the wheat.

$\frac{7}{15}$ were sold at 12% profit. The portions are as 3, 5 and 7.

And $(3\times1{\cdot}05)+(5\times1{\cdot}08)+(7\times1{\cdot}12)-(15\times1{\cdot}10)={\cdot}11$, *i. e.* for every \$15 of the cost the grain would have been \$·11 more.

∴ original cost $=16{\cdot}68\frac{1}{3}\times15\div{\cdot}11=\$2275$.

2. The gross annual receipts of a railroad are divided as follows: 40% for working expenses, 54% to pay a dividend of $3\frac{1}{2}$% to stockholders, and \$28350 placed in the reserve fund. Find the amt. of the railroad stock.

6%=reserve=\$28350, ∴ 54% = dividends=\$28350×9=$3\frac{1}{2}$% of stock, ∴ stock=\$7290000.

3. *A's* present age is $\frac{9}{7}$ of *B's*, but 34 years ago it was $\frac{5}{2}$ of *B's*. Find their present ages.

The difference of the ages is constant. Now $9=4\frac{1}{2}$ times $(9-7)$, and $5=1\frac{2}{3}$ times $(5-2)$.

∴ *A's* former age $=1\frac{2}{3}\div4\frac{1}{2}=\frac{10}{27}$ of his present age.

∴ $\frac{10}{27}$ *A's* present age $=34$, *A's* age$=54$, *B's* 42.

4. A boatman rows 5 miles with the tide in the time he would row 3 miles against it. But if the current ran half a mile an hour more, he would row twice as rapidly with the tide as against it. Find this rate in miles per hour in still water.

If 5 and 3 be his rates with and against the current, then $\frac{1}{2}(5+3)=4$ will be his rate in still water, and $(5-4)$ or $(4-3)=1$ will be the rate of the current$=\frac{1}{4}$ rate in still water.

Similarly if 2 be his rate with and 1 his rate against it then $\frac{1}{2}(2+1)=1\frac{1}{2}$ will be his rate in still water, and $(2-1\frac{1}{2})$ or $(1\frac{1}{2}-1)=\frac{1}{2}=$ rate of current$=\frac{1}{3}$ rate in still water, ∴ $(\frac{1}{3}-\frac{1}{4})$ rate in still water$=\frac{1}{2}$ mile per hour, *i.e.* rate in still water$=6$ miles.

5 If 12 oxen eat up $3\frac{1}{3}$ acres of pasture in 4 weeks and 21 oxen eat up 10 acres of like pasture in 9 weeks; find how many oxen will eat up 24 acres in 18 weeks. Ans. 36. (Proposed by Sir Isaac Newton, 1704.)

Newton's Solution. If 12 oxen in 4 week's eat up $3\frac{1}{3}$ acres, then by proportion 36 oxen in 5 weeks, or 16 oxen in 9 weeks, or 8 oxen in 18 weeks, will eat up 10 acres, on supposition that the grass did not grow. But since by reason of the growth of the grass 21 oxen in 9 weeks can eat up only 10 acres, that growth of the grass in 10 acres for the last 5 weeks will be as much as would be sufficient to feed the excess of 21 oxen above 16, that is 5 oxen for 9 weeks, or what is the same thing, to feed $\frac{5}{2}$ oxen for 18 weeks. And in 14 weeks, the excess of 18 above the first 4, the increase of the grass, by analogy, will be such, as to be sufficient to feed 7 oxen for 18 weeks, for it is 5 weeks : 14 weeks ∷ $\frac{5}{2}$ oxen : 7 oxen. Wherefore add these 7 oxen, which the growth of grass alone would suffice to feed, to the 8, which the grass without growth after 4 weeks would feed, and the sum will be 15 oxen. And, lastly, if 10 acres suffice to feed 5 oxen 18 weeks, then, in proportion, 24 acres would suffice 36 oxen for the same time.

Solution by A. Martin, M.A., editor *Mathematical Magazine*, Erie, Pa.

In the first case one ox eats $\frac{1}{4}$ of $\frac{3\frac{1}{3}}{12}$ or $\frac{5}{72}$ of an acre and $\frac{5}{18}$ of the growth of that acre in one week. In the second case one ox eats $\frac{1}{9}$ of $\frac{10}{21}$, or $\frac{10}{189}$ of an acre, and $\frac{10}{21}$ of what grows on one acre, in one week. Since one ox eats the same quantity of grass in one week in each case, therefore $\frac{10}{21}-\frac{5}{18}=\frac{25}{126}$ of the growth of one acre during one week is$=\frac{5}{72}-\frac{10}{189}=\frac{25}{1512}$ of an acre; and $\frac{25}{1512}\div\frac{25}{126}=\frac{1}{12}$ of an acre, what grows on an acre during one week. $\frac{5}{72}+\frac{5}{18}$ of $\frac{1}{12}=\frac{5}{54}$, the part of the original quantity on one acre which one ox eats in one week. $\frac{5}{54}\times18=\frac{5}{3}=$quantity of grass, in acres, one ox will eat in 18 weeks. $24+(\frac{1}{12}\times24\times18)=60=$quantity of grass, in acres, to be eaten from 24 acres in 18 weeks; and $60\div\frac{5}{3}=36$, the number of oxen required to eat it.

MANITOBA TEACHERS' EXAMINATION, 1882.

ARITHMETIC.

Examiner—J. B. Somerset, Esq.

Time—Three Hours—1st & 2nd Classes.

(The questions marked * are not to be answered by first class candidates. Second class may work any of the questions, 10 correct answers being considered a full paper for each class.)

1. *Simplify $\dfrac{\dfrac{1}{1-\dfrac{1}{2-\frac{1}{2}}}-\frac{1}{3}+(1+\frac{1}{2})}{3\left(\dfrac{1}{2-\frac{1}{2}}\right)-4}$.

2. *A person has \$15,566.60 invested at 6%; he saves each year $\frac{1}{5}$ of his income and adds it to his capital. What will his income be the fourth year?

3. *A dealer invests \$2,000 in the purchase of 22 horses, pays \$280 for their carriage here, \$75 for stabling and $1\frac{1}{2}$% for insurance. He loses one horse, which the insurance company makes good with \$150. How much per head must he sell the rest for to realize 12 per cent. on his investment?

4. *At what rate per cent. will \$1,520.00 amount to \$1,733.75 in $2\frac{1}{4}$ years?

5. Three contractors agree to build a road for \$10,000. *A* has 25 men at work for 16 days and 30 men for 34 days. *B* has 40 men for 10 days and 45 men for 40 days. *C* has 48 men for 50 days. *C* receives \$200 for superintending the work. How much is each contractor entitled to?

6. A note of \$6,000, dated May 16, payable 4 months after date, is discounted on July 21st at 6 per cent. by giving another note at 90 days, the proceeds of which will just meet the amount due. What is the face of the second note, interest being at the same rate?

7. Sterling exchange being at $9\frac{1}{2}$ per cent. premium, find the cost of a draft on London for £416, 8s 9d, brokerage being $\frac{1}{8}$ per cent.

8. School debentures are issued maturing in 20 years and bearing 6 per cent. interest. At what rate shall I bid for them so that my investment shall bring me 9 per cent. per annum?

9. If the stock of an insurance company paying yearly dividends of 10 per cent. is purchased at $137\frac{1}{4}$, brokerage being $\frac{1}{4}$ per cent., what per cent of income will it produce on investment?

10. A miner finds a gold nugget weighing 24 lbs. 12 oz. avoirdupois, which when assayed, proves to be 18 carats fine; standard gold being 22 carats fine and worth \$17.62$\frac{1}{2}$ per oz. Troy. Find the value of the nugget.

11. A railway train runs over a road $118\frac{1}{4}$ miles long in $4\frac{1}{2}$ hours; it stops 10 minutes for refreshments at a certain station and $2\frac{3}{4}$ minutes at each of 12 other stations, and runs through a tunnel $2\frac{3}{4}$ miles long at 16 miles an hour. What is the average speed per hour exclusive of stoppages, outside of the tunnel?

12. A room is 25 feet long, 16 ft. 6 in. wide, 11 ft. high. There are two doors 8 ft. high, 3 ft. 4 in. wide; two windows 8 ft. 4 in. high, 4 ft. wide, and a fire place 4 ft. 2 in. square. How many pieces of paper 8 yards long, 1 yard wide would be required to paper its walls?

13. *A* and *B* are each possessed of \$4,000. *A* invests in U.S. 5 per cents at 104 and *B* in $3\frac{1}{3}$ per cent. Consols at 91. At the end of a year *A* sells out at 102 and *B* at 98. Give the year's income of each and also his capital after selling out.

14. If I buy a horse for \$80 and am allowed 9 mos. credit, and I sell him forthwith for the same sum, giving 3 months credit, find my gain per cent, money being worth 8 per cent.

15. A property of \$2,000 consisting of three farms of unequal value, is to be divided equally among three sons. They agree each to take a farm and balance the difference in value by money payments to each other. If the farms be valued as 11, 8 and 6, find the payments that must be made.

SOLUTIONS.

1. Ans $-2\frac{1}{12}$.
2. Income $=15566.60\times(\frac{506}{500})^3\times\frac{6}{100}=\$968{\cdot}024956$.
3. Price $=\{\frac{112}{100}(2000+280+75+30)-150\}\frac{1}{21}=\$120{\cdot}05\frac{5}{7}$.
4. $6\frac{1}{4}$%.
5. $A=\$2311{\cdot}61$; $B=\$3581{\cdot}395$; $C=\$4106{\cdot}97$.
6. Face $\times\frac{200}{203}=6000\times\frac{100}{101}$; ∴ face$=\$6029{\cdot}71$.
7. Cost$=\frac{40}{9}\times\frac{109\frac{1}{2}}{100}\times416\frac{7}{16}=\$2029{\cdot}195$.
8. Rate$\times(1{\cdot}09)^{20}=100(1{\cdot}06)^{20}$. Rate$=100(\frac{106}{100})^{20}$.
9. $137\frac{1}{2}$ yields 10 ∴ yields an income of $7\frac{3}{11}$.
10. Value$=24\frac{3}{4}\times\frac{175}{144}\times12\times\frac{18}{22}\times17\frac{5}{8}=\$5204{\cdot}88+$
11. Distance outside tunnel$=115\frac{1}{2}$mls.
    Time in tunnel$=10\frac{5}{16}$min.
    Actual running time outside tunnel$=216\frac{11}{16}$min.
    ∴ rate per hour$=115\frac{1}{2}\div216\frac{11}{16}\times60=31\frac{3403}{3487}$ miles.
12. Distance round room$=83$ft.; total area of walls$=83\times11=913$ sq. ft.

Area of doors &c$=137\frac{13}{16}$ sq. ft.; $\therefore$ area to be papered$=775\frac{23}{36}$ sq. ft.

Area of 1 piece$=72$ sq. ft.

$\therefore$ number of rolls$=775\frac{23}{36}\div 72=10\frac{2003}{5592}$.

13. A's income$=40\times\frac{100}{104}\times 5=\$192\cdot 30\frac{10}{13}$.

A's proceeds$=4000\times\frac{102}{104}=\$3923\cdot 07\frac{9}{13}$.

B's income$=40\times\frac{100}{91}=\$161\cdot 61\frac{7}{13}$.

B's proceeds$=4000\times\frac{98}{91}=\$4307\cdot 69\frac{3}{13}$.

14. 9 mos.$=\frac{3}{4}$yr., 3 mos.$=\frac{1}{4}$yr.

Int. for 9 mos. @ 8%$=\frac{3}{50}$ discount$=\frac{3}{53}$, and P. W.$=\frac{50}{53}$.

Int. for 3 " " $=\frac{1}{50}$ $\therefore$ discount$=\frac{1}{51}$, and P. W.$=\frac{50}{51}$.

$$\therefore \text{gain}=80\left(\frac{50}{51}-\frac{50}{53}\right)=4000\left(\frac{1}{51}-\frac{1}{53}\right)=\frac{8000}{53\times 51}$$

$$\therefore \text{gain }\%=\frac{8000\times 100}{53\times 51\times 80}=\frac{1000}{2703}=\cdot 37 \text{ nearly}=\text{almost } \tfrac{3}{8}\%$$

15. If 75 shares represent the property, the farms will be represented by 33, 24, 18 shares respectively; each son should therefore get 25 shares. Hence A must pay B one and C seven shares *i.e.* $\frac{1}{75}$ and $\frac{7}{75}$ of \$2000 respectively, or $\$26\cdot 66\frac{2}{3}$ to B and $\$186\cdot 66\frac{2}{3}$ to C.

ARITHMETIC.

Examiner—J. B. Somerset, Esq.

Time—Three Hours—Third Class.

1. Simplify $\frac{3}{5}\times\frac{5}{6}-\frac{2}{3}$ of $\frac{7\frac{1}{2}-5\frac{1}{4}}{1\cdot 625}\times \cdot 064743589\dot{}$

2. Bought 6 cwt. 3 qrs. 21 lbs. of sugar, at £2 16s. per cwt., for which I am to pay two-thirds cash and the balance in soap at $4\frac{1}{2}$d. per lb. What do I pay in money and how many lbs of soap?

3. At what time after half-past 3 o'clock will the two hands meet for the first time?

4. A person performs $\frac{5}{8}$ of a piece of work in 11 days, he then receives assistance from another person and they finish it in 4 days. In what time could each do it by himself?

5. Simplify $\dfrac{\cdot 1234\times\cdot 4321-\cdot 01}{\cdot 00481\ 346}$ and $\dfrac{\cdot 83\dot{}+\cdot 0416\dot{}}{\cdot 00\ 25}$

6. If brass be composed of 63 parts of copper and 31 parts of zinc, what quantity of brass contains 4 lbs more of copper than of zinc?

7. 2 acres of land are contained in a field whose width is 2 chains 80 links. What is the length of the field?

8. A man left $\frac{5}{8}$ of his property to his eldest son, $\frac{5}{8}$ of the remainder to the younger son and the rest to his wife. Upon dividing it was found that the eldest son had \$750 more than the younger. Find the share of each.

9. What sum must I lend for 10 months at $6\frac{1}{2}$ per cent. per annum, so that I may receive interest to the amount of \$237.50?

10. If 500 men can excavate a basin 800 yards long, 500 yards wide and 40 yards deep in 4 months, how many men will be required to excavate a basin 1,000 yds. long, 400 yds. wide and 50 yds. deep in 5 months?

HINTS AND RESULTS.

1. $\frac{953846059}{216666645 0}$.
2. £12 " 19 " $10\frac{2}{25}$; $346\frac{34}{75}$ lbs.
3. $21\frac{9}{11}$ min. after four.
4. $17\frac{3}{5}$ dys., and $27\frac{1}{13}$ dys.
5. 9; 350.
6. $11\frac{3}{4}$ lbs.
7. 7 chains $14\frac{2}{7}$ links.
8. \$1200, \$450, \$270.
9. $\$4384.61\frac{7}{13}$.
10. $800\times 500\times 10=1000\times 400\times 10$ $\therefore$ same number, 500.

ALGEBRA.

Examiner—A. Dawson, M.A.

Time—Three Hours.—First Class.

1. Investigate a rule for finding the G.C.M. of two algebraical expressions, explaining when and why a factor can be introduced or suppressed.

Find the G.C.M. of $\begin{cases} a^4+a^2x^2+x^4 \\ a^4+a^3x-ax^3-x^4. \end{cases}$

2. Find the sum of the product of the roots of the equation $x^2+px+q=0$.

When will the roots be real and different, real and equal, or impossible?

Form the equation whose roots are

$$\frac{p-\sqrt{q}}{pq} \text{ and } \frac{p+\sqrt{q}}{pq}$$

3. A triangular piece of ground contains 210 square feet and two of the sides are 18 and 25 feet respectively. Find the remaining side.

4. If $\frac{a}{b}=\frac{c}{d}=\frac{e}{f}$ prove $\frac{a\ c\ e}{b\ d\ f}=\frac{a^3+c^3}{b^3+d^3}$.

Find the square root of $33\pm 12\sqrt{6}$

5. Define the Harmonical mean between two quantities.

The sum of three numbers in Harmonical Progression is 33 and their continued product is 972. Find the numbers.

6. Prove that the Arithmetical, Geometrical and Harmonical means between a and b are in order of magnitude, the arithmetical mean being the greatest.

Shew that $p^{q+1}-\frac{p^2}{2}+\frac{p}{2}=(p^q-p+1)+(p^q-p+2)+(p^q-p+3)+$ to p terms.

7. If \$600 pay 10 men for 10 weeks' work, for how many weeks will \$540 pay 6 men?

8. If $\left.\begin{array}{l} a_1x+b_1\ y+c_1\ z=0 \\ a_2x+b_2\ y+c_2\ z=0 \end{array}\right\}$

Shew that $\dfrac{x}{b_1\ c_2-b_2\ c_1}=\dfrac{y}{c_1\ a_2-c_2\ a_1}=\dfrac{z}{a_1\ b_2-a_2\ b_1}$

Eliminate x and y from $\left.\begin{array}{r} x+2\ y-c=0 \\ 2x-\ y+b=0 \\ x+\ y-a=0 \end{array}\right\}$

9. The number of combinations of n things taken $n-r$ together is equal to the number of them taken r together.

Find the number of combinations that can be made out of the letters in the word *binomial* taken 3 together.

10. Extract the square root of $1+x^3+2\ (1-x^2)\sqrt{x}+3x-x^2$.

Shew that $\sqrt[3]{5}=1+\frac{4}{3}-\frac{16}{9}+\frac{320}{81}-\frac{2560}{243}+$ &c.

SOLUTIONS.

1. The ordinary process of finding the G.C.M. of two expressions consists in continuously taking the difference between multiples of the given quantities. It depends on the fact that every measure of x and y will measure $mx\pm ny$ where m and n are any multiples whatever. In practice however it saves labor to restrict m and n to whole numbers. For the nearest method of conducting the operation see McLellan's "Teachers' Handbook of Algebra."

Ans. a^2+ax+x^2.

2. Sum$=-p$, product$=q$.

Roots are real and different, real and equal, or impossible according as $p^2>$, $=$, or $<4q$.

Ans. $p^2q^2x^2-2p^2qx+p^2-q^2=0$.

3. $210^2=s(s-a)(s-b)(s-c)$, where $s=a+b+c$, and a, b and c are the sides. Given $a=18$, $b=25$, whence by substitution we get c.

4. Book-work. Ans $\sqrt{3}\,(2\sqrt{2}\pm\sqrt{3})$.

5. Book-work. Let a, $\frac{2ab}{a+b}$. and b be the numbers,

$\therefore (a+b)+\frac{2ab}{a+b}=33$ and $\frac{2a^2b^2}{a+b}=972$

whence $a=6$, $b=18$, and $\frac{2ab}{a+b}=9$.

6. Book-work.

An A. P. First term$=(p^q-p+1)$ com. difference$=1$, number of terms$=p$ $\therefore$ sum$=[2(p^q-p+1)+(p-1)(1)]\frac{p}{2}$

$$=p^{q+1}-\frac{p^2}{2}+\frac{p}{2}.$$

7. Ans. 15 weeks.

8. Multiply (1) by a_2, (2) by a_1, subtract, transpose, and divide and $\dfrac{y}{a_2c_1-a_1c_2}=\dfrac{z}{a_1b_2-a_2b_1}=$ (by symmetry) $\dfrac{x}{b_1c_2-b_2c_1}$.

Add (2) and (3) and $x=\frac{1}{3}\ (a-b)$

Subtract (3) from (1) and $y=\ c-a$.

9. Whenever a set of r things is selected from n things, there is left a set of $n-r$ things.

We have 8 letters of which 2 are alike. The 6 different letters may be combined two and two in $\frac{5\times 6}{2}$ different ways $=15$ and be-

fore each of these we may place an i, giving 15 combinations of three different letters. But each group of three letters may be written in three different ways $\therefore$ total number $= 3 \times 15 = 45$.

10. Writing fractional exponents we have

$1 + 2x^{\frac{1}{2}} + 3x - x^2 - 2x^{\frac{5}{2}} + x^3$, and by inspection we see the square root is $1 + x^{\frac{1}{2}} + x - x^{\frac{3}{2}}$.

$$\sqrt[3]{5} = (1+4)^{\frac{1}{3}} = 1 + \frac{\frac{1}{3}}{1} \cdot 4 + \frac{\frac{1}{3}(\frac{1}{3}-1)}{1 \cdot 2} \cdot 4^2 + \frac{\frac{1}{3}(\frac{1}{3}-1)(\frac{1}{3}-2)}{1 \cdot 2 \cdot 3} 4^3 + \&c.$$
$$= 1 + \tfrac{4}{3} - \tfrac{16}{9} + \tfrac{320}{81} - \&c.$$

EUCLID.

Examiner—T. C. L. ARMSTRONG, M.A., LL.B.

TIME—THREE HOURS.—SECOND CLASS

1. Draw a straight line at right angles to a given straight line from a given point in that line.

From the extremity of a line draw a line at right angles to it.

2. The angles which one straight line makes with another upon one side of it are either two right angles, or are together equal to two right angles.

Define right angle, perpendicular, problem, theorem.

3. If any side of a triangle be produced, the exterior angle is equal to the two interior and opposite angles; and the three interior angles of every triangle are equal to two right angles.

What proposition follows as a corollary from this?

Show that the angle in an equilateral triangle is $\frac{2}{3}$ of a right angle; that in a pentagon is $\frac{6}{5}$ of a right angle; and that in a hexagon is $\frac{4}{3}$ of a right angle.

4. The complements of the parallelograms which are about the diameter of any parallelogram, are equal to one another.

If the given parallelogram be a square, show that the parallelograms about the diameter are also squares.

5. If a straight line be divided into any two parts the squares of the whole line and of one of the parts are equal to twice the rectangle contained by the whole and that part, together with the square of the other part.

EUCLID.

Examiner—A. DAWSON, ESQ., M.A.

TIME—THREE HOURS.—FIRST CLASS.

1. Any two sides of a triangle are greater than the third side.

The difference between any two sides of a triangle is less than the third side.

2. The opposite sides and angles of a parallelogram are equal to one another and the diagonal bisects it; that is divide it into two equal parts.

Define a rhombus, an oblong, a scalene triangle.

The diagonals of a parallelogram bisect each other.

What changes can be made in the shape and dimensions of a parallelogram without altering the area thereof?

3. To describe a parallelogram equal to a given triangle, and having an angle equal to a given angle.

4. If a straight line be divided into two equal parts, and also into two unequal parts, the rectangle contained by the unequal parts, together with the square on the line between the points of section is equal to the square on half the line.

Construct a rectangle equal to the difference between two given squares.

5. To divide a given straight line into two equal parts, so that the rectangle contained by the whole and one of the parts, may be equal to the square on the other part.

If one side of a triangle be bisected, the sum of the squares on the other two sides is double of the square on half the side bisected, and of the square of the line drawn from the point of bisection to the opposite angle of the triangle.

6. If any two points be taken in the circumference of a circle, the straight line which joins them shall fall within the circle.

How would you answer the assertion that this proposition is self-evident?

Through one of the points of intersection of two equal circles draw the longest double chord.

7. The angles in the same segment of a circle are equal to one another.

About the triangle A B C describe a circle, from the points B and C let fall perpendiculars on the opposite sides of the triangle meeting the circumference in E and F respectively, prove that the arc A E is equal to the arc A F.

8. To describe a circle about a given equilateral and equiangular hexagon.

Does Euclid's definition of proportional quantities include incommensurable quantities? Define and explain.

9. If a straight line be drawn parallel to the base of a triangle to cut the sides or the sides produced, it will cut them proportionally; and conversely.

Is this converse universally true?

10. Similar triangles are to one another in the duplicate ratio of their homologous sides.

Bisect a triangle by a line drawn parallel to one of its sides.

HINTS.

1. I. 20. If ABC be any triangle, we have $AB < BC$ and CA. Take AC from the unequals, and $AB \sim CA < BC$.

2. I. 34. Book-work. So long as the base is unchanged, and the parallelogram remains between the same parallels, the area is constant.

3. I. 42. 4. II. 5. The difference between the square on half the line and the square on the line between the points of section is equal to the rectangle contained by the unequal parts. Hence the construction: place the less of the two given squares so that two of its sides may be in the same straight lines with the sides of the greater square, and its diagonal part of the greater diagonal, produce &c.

5. II. 11. See Pott's Euc. Exercises on Bk. II. prop. 3.

6. III. 2. See Pott's note on this proposition. Join the centres. Through the point of intersection draw a line parallel to this double radius.

7. III. 21. The arcs are equal if the angle ABE = angle FCA, and since the sides AB and AC are cut at right angles this follows from I. 15 and I. 32.

8. Converse of IV. 15. Yes. See Pott's note Bk. V. Def. 3.

9. VI. 2. The enunciation is not sufficiently limited. In order that the converse may be universally true the enunciation ought to specify that the segments terminated at the vertex are to be homologous terms in the ratios, otherwise the alternate segments might have the same ratio but the line would not be parallel to the base.

10. VI. 19. See Pott's Euc. Bk. VI. Ex. 42. Hints &c., where the solution is given.

STATICS.

Examiner—E. L. BYINGTON, M.A.

TIME—TWO HOURS FOR THE THREE SUBJECTS.—FIRST CLASS.

1. Define the terms *Statics*, *Volume*, *Density*, *Moment*.

2. What elements of a force are necessary to ascertain its effects?

3. Find the resultant of two forces of P. lbs. each, acting on a body so as to make an angle of 120°. What angle will the resultant make with each of the forces? ANS. 120°

4. A force of 8 lbs acts on a body. The resultant is 10 lbs. The angle made by the given force and the resultant is 30°. What is the other force and what angle does it make with the given force?

ANS. 6 lbs.; 90°

HYDROSTATICS.

1. State the two laws upon which the mathematical theory of Hydrostatics depends.

2. Describe Nicholson's Hydrometer and method of use.

3. How is a Barometer made? Explain its principle.

4. Why is the human body not crushed by the pressure of the atmosphere?

PHYSICS.

1. Distinguish *Molecule* from *Atom*.

2. Name the states of aggregation of matter.

3. What is meant by Conservation of Energy?

4. What is a Spectrum? Why does a Prism divide a ray of light?

5. How may positive and negative Electricity be easily developed and distinguished?

6. What is meant by Electrical Induction?

THE BEAUTY OF REPETITION.—Imagine yourself sentenced to sit quietly for thirty minutes and read over and over the same four or five versrs from the average third or fourth reader! If a scholar's thoughts do not "wander from the lesson" after a second or third reading, it is because he *has* no thoughts.—*Iowa Normal Mouthly.*

Special Articles.

THE PROBLEM OF TEACHING TO READ.

BY J. M. D. MEIKLEJOHN, M.A.

The problem of teaching children to read has, in my belief, never yet been fully faced or thoroughly solved There is no similar problem in Germany; a somewhat similar—but not nearly so difficult—problem exists in France. But it is only in England—of all the countries of Europe—that we meet with the problem in a form of extremest difficulty; and the want of a solution that shall bring confidence with it into all our Primary Schools makes itself still everywhere felt.

We seem to be all so thoroughly familiar with it, and we have all talked about it so much and discussed it so often that it almost seems a superfluity to raise or to examine the question over again. —The fact is, that familiarity is the greatest enemy of knowledge. We have lived all our lives in a town; and we fancy we know it, and its history, and the inhabitants and all about it. A stranger comes and asks us a simple and easy question; and we are unable to answer it. So, many people who have spent all their lives in London imagine they 'know' London. —A village stands at the foot of a range of mountains, and many generations have been born into the valley and have died out of it: but no man, woman, or child ever suspected what lay in the strata of the mountains they had been looking upon all their lives. At length comes some stranger who had studied geology and mineralogy, and he applies his knowledge to these old, old phenomena, and from the character of the rocks and the dips of the strata, he tells the people there is copper there, and where it will most probably be found. 'Copper!' says the oldest inhabitant. 'I have lived here man and boy for the last eighty years; and my father and his father before me; and I never saw or heard of such a thing. It is against all experience.' It is against *his* experience; but then his mind was only the mind of his own eyes—the mind of eyes with no thought or questioning power at the back of them; and he was so familiar with everything that he could imagine nothing new in the old set of sights that had met his eyes for so many years. Thus it is plain that it is not ignorance—but familiarity—that is the enemy of knowledge. Ignorance is a clean sheet of white paper, on which we can write anything; but familiarity is a palimpsest, on which many writings and drawings have been carelessly and thoughtlessly scored, so that upon the blurred and blackened manuscript there is sometimes room for no more.

I venture to think that there are still several new and true words to be said about teaching to read, and that the problem still awaits discussion from new points of view by fresh minds. The new interest that has arisen in education on the one hand, and the new discoveries that have been made in philology and in the English language on the other, authorise us in cherishing a hope that some good result may be obtained from a new and careful examination of our English mode of writing down sounds.

For indeed the problem has two sides—the philological side and the educational side. As a question in philology, we ask ourselves: What kind of alphabet have we? How do we use it? Has it grown up like Topsy, or has it been carefully adapted to the sounds we all use? For we must not forget that the language itself—the real English language is not a set of writings, but a *tongue* or a *speech*; that we speak thousands of words for every one we write; that writing or printing is only a more or less device convenient —but is no necessary part of any language.

On the educational side, the question arises: How shall we put this set of black marks—this notation—into the minds of our children? What are the natural motives and desires that we can appeal to for help in this process? How shall we induce our young children to take kindly to the learning—so that it may be welcome and a pleasure, and not painful and a labour? What powers of feeling, imagination, or intellect—because there is intellect even in the dullest and youngest—ought the Teacher to appeal to in his self-imposed task of training the child to read?

It is the purpose of the present writer, in this short paper, to try to answer these questions; and he hopes that, in the course and as the result of the discussion, something may be discovered that may redound to the benefit of Elementary Instruction in this country.

The examination of our English notation, in the light of the new science of philology, was hardly possible before the present generation. Everybody knew that our mode of 'spelling,' as it is called, is 'irregular' and 'anomalous' and a great many other things: but then this was looked upon simply as the whim of our fine old mother-tongue—and as one of those little insular peculiarities which baffled and confused the foreigner, and was only another mark of our superiority to people born on the wrong side of the English Channel.

But we had neither the knowledge, nor could we have the aloofness and detachment of mind, which would enable us to see our notation as it is—and to describe its divergencies from a perfect or regular notation. Now, however, that the History of our English tongue is becoming more and more studied, and the knowledge of it spread abroad more and more widely, we are able to compare our notation with the alphabets or notations of other languages; and —what is still more interesting—we are able to give a historical account of almost every malformation or irregularity in our mode of printing our spoken language.

The History of the English Language tells us, in fact, that we never had—that we never have been able to achieve anything like regularity or common business-like self-consistency in the way of writing it down. It began to come over to this island in the fifth century—a poor, rough guttural speech, in the mouths of hardy young men: and it probably remained unwritten until the eighth century. It lived in this island in different forms or dialects in different parts of the island: and the English of the Isle of Wight no doubt differed from the English of the Mercians as much as that differed from the speech of the Anglian peasant of Norfolk. If one dialect shewed any tendency to coalescing with the others, and thus giving a harmonious development to our English speech, that tendency and that development were rudely interfered with by the irruptions of the Danes, who brought with them only another dialect of the same Teutonic speech—a dialect which preferred hard gutturals, like *k*, to soft gutturals like *g*, or aspirates like *ch*. The effects of this disturbance might have been eliminated, and some attempts at harmonious spelling made by the English scribes, had it not been for the sudden and forceful importation of an entirely different language—a language not belonging to the Teutonic stock at all, but to the stock called Pelasgic, the branches of which are to be looked for in the Southern Peninsulas of Europe. The incoming of the Norman-French, who took the land, seized every high place in the state, shut out Englishman from all but the lowest offices in the Church—who imported their own language, modes of warfare, law, and political constitution, again arrested the harmonious development of our mother-tongue. From 1066 to 1362—three centuries all but four years—the Norman-French tongue was employed in courts of law; and the English yeoman could not plead or bring an action in his own language; and even English boys—as John de Trevisa tells us—had to construe their Latin into the French idiom. The English language remained in a disintegrated form—spoken in a different fashion and with differing vowel-

sounds in the North, the South, the East and the West; and for about two centuries it was hardly written at all. Any literature that existed in French was chiefly an importation and an exotic; and, though many Norman-French words were contributed to our language, its influence upon the writing down of English was wholly bad and confusing. For three centuries the two languages faced each other; and, though English, under the influence of French, entirely changed the build of its sentence, no influence for the better from it affected our notation. In fact, French—and especially Norman-French—was as bad in that respect, as we shall presently see, as our own English marking.

The English language practically remained— both for the ear and upon paper—a conglomerate of different dialects, with little or no tendency towards convergence, with perhaps a greater centrifugal than centripetal habit. The vowel-sounds differed, and the modes of writing them were different; certain consonants were favourites in one place and rejected in another; and there was no uniform mode of spelling English down even as late as the end of the sixteenth century.

(To be continued.)

HOMERIC COSMOLOGY.

Some stir has been excited in literary and scientific circles in the United States by "The True Key to Ancient Cosmology," a pamphlet recently published by Dr. W. F. Warren, President of Boston University. The author's idea is that the world, in the conception of Homer and the ancients generally, is a sphere or spheroid situated within the starry sphere, "each having its axis perpendicular and its north pole at the top." The upper hemisphere was regarded as the abode of man, the lower that of departed souls and their rulers, while the ocean stream is a broad belt flowing round what we call the equator, and separating the two hemispheres. Correspondingly the upper half of the starry sphere is the abode of the gods, while the lower half is Tartarus. This idea, or theory, which completely reverses the traditional interpretation of the Homeric cosmogony, is illustrated by diagrams and engravings. If it is correct, a most striking proof is given of the possibility of many successive generations of archaeologists, scientists and scholars failing to catch the entire drift and spirit of ancient legends and literature in their cosmic teachings and relations. Dr. Warren's theory is exceedingly simple, so simple indeed that, if it is Homer's conception of the universe, the wonder becomes all the greater that the scholarship of two thousand years should have overlooked it. In stating his supposed discovery, the learned Doctor assumes the evidence to be demonstratively convincing, particularly the fact that the scheme explains so many otherwise inexplicable phrases in Homer. In addition, he undertakes to prove that this idea runs through the beliefs and records of all the ancient races. As we have spoken of this interpretation as a *discovery*, we ought to state that its author claims for it the direct or implied sanction of Mr. Gladstone, and certain noted German authorities. The chief points which have been taken in opposition by writers who have discussed Dr. Warren's pamphlet, are that the theory is inconsistent (1) with many Homeric phrases; (2) with references to the rivers as the children of Ocean; (3) with repeated hints as to the connection between the marine and infernal deities; (4) with the localizing sunrise at a point on the earth's surface; (5) with the terror of the infernal deities when the earth is shaken over their heads by the conflicts of the gods on the Plains of Troy; and (6) particularly with the vague and childish ideas of the Homeric age. To these objections Dr. Warren has made a brief reply through the columns of the New York *Independent*. So far from admitting their force he claims that the references quoted are all best explained by his theory. His reply to objection (4) is worth quoting: "Proceeding on the false assumption that the Homeric earth was flat, some place the mythic isle in the furthest East, some in the furthest West; some in despair demand *two*—one in the East and one in the West. Conflicting and self-destructive as are these varieties of representation, they are all unwitting witnesses to the truth. The moment we wrap the three maps around the real Homeric sphere we see that, on the meridian opposite to the poet, East and West meet, and that precisely *there* all three of the cartographical depictions agree in locating the isle 'where are the abodes and dance grounds of Aurora, and where are the risings of the Sun.' Even before he abandoned the current view, and came to admit the sphericity of the Homeric earth, (*as he now does*,) Gladstone came as near the true interpretation as he possibly could and missed it, when, speaking of Helios he wrote: 'The fact of his sporting with the oxen night and morning goes far to show that Homer did not think of the earth as a plain, but round, perhaps, as a cylinder, and believed that *the East and West were in contact.*'"

As regards "the vague and childish ideas of the Homeric age," the author thinks that most poets' ideas—Wordsworth's for instance—would be considered "vague and childish," if interpreted literally. He resolutely declines to believe that "the world's greatest ethical poet was an idiot." People who hold, he argues, that Homer believed the sky to be a vault of metal, should also hold that he believed Achilles' voice to be a brass projectile.

We have referred to the subject as one attractive not only to classical scholars, but to the large class of our readers taking an interest in the genesis of scientific ideas.

THE REVELATIONS OF THE WEATHER-MAP.

A correspondent of the New England *Journal of Education* discourses thus enthusiastically about what is called the signal service system:—

Before the age of the weather-map it was as impossible to have much knowledge of the weather as before the age of discovery to have much knowledge of the geography of the globe; and at present it as useless to discuss the weather question with a person who is not familiar with the weather-map as to attempt to discuss the character of a country with one who has failed to study geography. The weather-map is the record of daily atmospheric changes, and is one of the most entertaining studies that science affords.

The first question that seems to present itself is, How to procure the map? For the information of those who would like to understand the wonderful revelations of this map, I would say that it is published daily by the Weather Bureau at Washington and sold at cost-price, two cents a copy, or two cents per day,—certainly not a very heavy tax for what it reveals.

Before we had these maps we had little idea of a storm; and even at present, no matter how intelligent a person may be, if he has not seen this map and closely followed its changes from day to day, he is entirely ignorant of our weather system; in fact he has not the remotest conception of it. For this reason it is most remarkable that our advanced scholars and leading men and women have so neglected this map and have committed themselves in favor of such nonsense as the so-called "weather prophets" have treated the world to for the past few years.

Let these intelligent people study this map for a few months, or better, for a season, and they will be surprised that they ever gave the least cognizance to such absurdities.

The weather-map reveals the daily changes of "high" and "low," *i. e.*, high and low barometer; that what we term "low" moves, in *general lines* from the west toward the east; that the wind is always toward "low," therefore if "low" is on a high line it will be warm; if moving across the country on a low line, north winds, and therefore *cold*. "Low" is the agent of the storm,—the centre toward which the clouds are gathered, hence the movement of the clouds. The hurricane, the tornado, the wind-storm,—call it what we will—will always be found to be in the track of "low,"

A "low" goes across the country about once in four days; and during the wet and day months of July, August and September, it goes by as frequently as in March and April; but it crosses on such a high line that it goes by us time and time again without precipitation, at least more than an occasional thunder-storm. By the way, a *thunder-storm* is the result of a *high* "low," *i. e.*, a "low" on a high line.

The tracks of these "lows" vary with the seasons. Whatever the change in temperature or moisture, the record thereof will always be found on the weather-map. It is most interesting to note the changes from day to day. The *next* "low" regulates the coming weather. Where will it appear?

We are always taken by surprise, and the revelation is, *nature never repeats herself*; her changes are endless, and her varieties most infinite, amusing, and instructive.

Intelligent men and women, especially teachers and instructors, procure the weather-map, study it carefully, note the changes day by day, and it will afford you entertainment and instruction. Nothing else will reveal the weather to you. If, as individuals, you are too poor to "carry" a long subscription for the map, form meteorological clubs, and divide the cost; consult together; notice the local weather in connection with the movements of "high" and "low" as revealed on the map. Do this for a year, and your praises will be unbounded in favor of the map,—you will write poetry and special discourses on this wonderful addition to modern science.

Your praises will know no bounds. You will perceive that not one-half, yea, not a quarter has been told you, and that you must see and study it for yourselves in order to fully appreciate its merits.

The estimation of weather probabilities has been regularly taken up in Canada in connection with the Magnetic Observatory in Toronto and also with the system in the United States. Meteorology has by means of the telegraph been made one of the most interesting departments of physical geography, and the managers of teachers' institutes would do well to give it occasionally a place on their programmes.

Examination Questions.

The following papers, set for what is called the "Queen's Scholarship" in England, are given as a specimen of the character of English public examinations. The answers to the mathematical papers are appended:

GRAMMAR.

Two hours and a-half allowed for this paper.

(No abbreviation of less than three letters to be used in parsing or analysis.)

All candidates must do the composition, parsing, and analysis, and must not answer more than *five* other questions.

Composition.

Write a letter on *one* of the following subjects:—

(1) Gardening.
(2) A storm at sea.
(3) A day's angling.
(4) Some public park.

Grammar.

1. Parse fully the words italicized in the following sentences (Syntax is an essential part of parsing):—

"For *who would bear*
The insolence of office and the spurns
That patient merit of the *unworthy* takes,
But that the dread of *something* after death,
The undiscovered country from whose bourn
No traveller returns, *puzzles* the will
And makes us *rather* bear those ills we have
Than fly to *others that* we know not of?"

2. Analyse the sentence in Question 1, making a table, so as to show in separate columns:—

(1) The nature of the sentence.
(2) (If dependent) its relation to the principal sentence.
(3) Subject.
(4) Its enlargements (if any).
(5) Predicate.
(6) Its extensions (if any).
(7) Object.
(8) Its enlargements (if any).

3. Select and classify the pronouns, conjunctions, and prepositions in the same sentence.

4. Explain the terms cardinal, ordinal, and indefinite numerals, and give examples of each.

5. Give the past tenses of the verbs *crow*, *hew*, *sing*, *win*, *help*, *bid*, *chide*, *write*, *dig*, *lie*, *get*, *shear*, and any obsolete forms of those tenses.

6. Classify the English conjunctions, and show that they are frequently derived from verbs.

7. Explain the force of the following affixes: *-dom*, as in *martyrdom*; *-some*, as in *handsome*; *-less*, as in *speechless*; *-ible*, as in *inflexible*; and give other examples of each affix.

8. Define a preposition, and show by examples that prepositions do not always precede the noun they govern.

9. Give examples of noun, adjective, and adverbial clauses, employed as subordinate sentences.

10. Name the sources of our language from which the following words are derived: *hat*, *shoe*, *vest*, *glove*, *sock*, *bonnet*, *ribbon*, *tunic*, and *shirt*.

GEOGRAPHY AND HISTORY.

Three hours allowed for this paper.

All Candidates must draw a map and answer Question 8. They may answer *four* other questions in each subject.

Geography.

1. Draw a map (showing physical features only) of—(*a*) Ireland, *or* (*b*) North America, *or* (*c*) Hindostan.

2. Explain the terms cardinal points, horizon, meridian, plateau; give the difference in time, and the distance, between two places situated on the equator in longitude 40° east, and longitude 40° west respectively, and state the latitudes of London, Edinburgh, Dublin and Liverpool.

3. Name four counties in England, Scotland, and Ireland respectively which are rich in minerals; and give a full account of one of the border counties of England *or* Scotland.

4. Describe a coasting voyage from Southampton by way of Lisbon to Constantinople, taking in cargo at six of the principal ports on the northern shore of the Mediterranean Sea.

5. Enumerate the chief productions of Trinidad, Victoria, and Ceylon, and give the dates at which these possessions were severally annexed to the Dominions of England.

6. Describe the positions of Cyprus, St. Helena, Borneo, Barbadoes, and Vancouver's Island; and give a full description of one of these islands.

7. Name the mountains in which the Rhine, Volga, Mississippi, Amazon, Indus, Lena, and Niger rise, the seas into which they flow, and a few of the principal cities on the banks of the four first-named rivers.

History.

8. Arrange in chronological order and give the dates of the following events:—The accession of George III., of Edward I., and of James I.; the battles of Culloden, La Hogue, and the Standard; the passing of the Act of Uniformity, the Septennial Act, and the Habeas Corpus Act; the deaths of Nelson, Wallace, Mary Queen of Scots, and Pitt.

9. Give a brief account of the conquest of Britain by the Romans; and name any distinguished Romans who died in this country.

10. Enumerate, with dates, the chief events of the reign of Henry III., and give a brief sketch of that monarch's character as illustrated by the events of his reign.

11. Write a short life of one of the kings who reigned in Scotland during the 16th century, and explain the claim of the House of Stuart to the throne of Scotland.

12. Name the principal English Statesmen in the reigns of Henry VIII. and Elizabeth, and write a brief life of one of them.

13. Enumerate the chief events of the years 1688–89, and state briefly the principal constitutional changes which resulted in England.

14. Give some account of the causes of the War of American Independence, and mention in order the chief incidents of that war.

15. Name sovereigns of France and Spain who were contemporary with Elizabeth, Charles II., and George III., and give a brief account of the foreign policy of Charles II.

DOMESTIC ECONOMY.

Three hours allowed for this paper.

Candidates are not permitted to answer more than *one* Question in each Section.

SECTION I. (*Needlework.*)—1. Describe fully the following stitches, and say in what garments and materials they are commonly used, and how you would teach them to children :—*hemming, felling, back-stitching, feather-stitching (i.e.*, coral stitching.)

2. Describe the process of cutting out and making a pinafore for a girl six years old, with exact measurements, and an account of the materials required.

SECTION II. (*Savings and Investments.*)—1. State the annual income on which, in your opinion, a retired Schoolmistress could live in comfort in her old age ; and the methods of saving and investment in her days of full work and salary, by which she could provide that income on retirement.

On what weekly wages can an artisan maintain in comfort himself, his wife, and four children between the ages of four and ten:—and in what proportion should he distribute those wages in rent, food, clothing, education of his children, recreation, and savings?

SECTION III. (*Food—its ingredients.*)—1. What effect is produced on the human body by food containing in large quantities the following substances respectively : (*a*) sugar, (*b*) lime, (*c*) salt, (*d*) animal oils ?

2. State fully what are the objections to a diet either exclusively vegetable or exclusively animal.

SECTION IV. (*Food—its preparation.*)—1. Describe the efficient modes of cooking potatoes ; give your own opinion as to the merits of each, and say for what dish of meat each mode of cooking them is most suitable.

2. Give an account of the materials, preparation, and cooking of an economical and wholesome dinner for a Schoolmistress living alone.

SECTION V. (*Rules for Health.*)—1. Mention any respects in which the modern fashion of female dress is injurious to health, and show in what way each foolish practice in dressing produces its bad effects.

2. Give plain rules for the preservation of health for a Pupil Teacher (*a*) who lives in the country a mile from her school, and (*b*) for a Pupil Teacher in London living a few doors from her school.

3. What would you do before the doctor came, if a child in your school (*a*) was badly scalded, (*b*) had fainted, (*c*) had cut his arm above the elbow ?

SECTION VI. (*Clothing and Washing.*)—1. Describe the modes of washing, drying, and getting up the different articles which would go into the tub on washing-day in a labourer's cottage.

2. Give an account of the price, material, colour, and making up of a neat dress for your own summer wear in school, and say how it should be washed and worn so as to last as long as possible.

MALE CANDIDATES.

ARITHMETIC.

Three hours allowed for this paper.

Candidates may answer all the questions.

The *solution* must be given at such length as to be intelligible to the examiner, otherwise the answer will be considered of no value.

1. Add together the products of each pair of the numbers 150, 225, 375, and find the difference between this sum and the product of all three numbers.

2. Divide 16 acres 3 roods 2 poles among four brothers, giving the eldest brother half as much again as each of the others, and find the value of the eldest brother's share at a guinea for each pole.

3. Find, by practice, the value of 17 lbs. 11 ozs. 16 dwts. 9 grs. of gold at £3 12*s.* 8*d.* per oz.

4. Find the difference between $\frac{\frac{1}{7}-\frac{1}{8}}{\frac{1}{8}+\frac{1}{7}}$ of 19*s.* 10*d.*, and $\frac{3\frac{1}{4}+2\frac{1}{5}}{3\frac{1}{4}-2\frac{1}{5}}$ of 1 *d.*, and reduce the difference to the fraction of 4*s.* $5\frac{1}{2}$*d.*

5. Express as decimal of a pound $\frac{3}{8}$ of $5\frac{1}{4}$ of 3*s.* 9*d.*, and find the value of that decimal of a yard.

6. Write out clearly and concisely the rules for—
   (*a*) finding the G. C. M. of two numbers ;
   (*b*) finding mentally the product of 1616 by 625 ;
   (*c*) substraction of vulgar fractions.

7. If the larger wheel of a bicycle whose circumference is 8 yards, 0 feet, $5\frac{1}{8}$ inches, make 200 more revolutions than that of another bicycle in travelling 5 miles, find the circumference of the latter wheel.

8. 320 men begin a piece of work ; it is completed in 6 days of 10 hours each, but on each day only half of those employed on the previous day are at work ; in what time would 105 men working 6 hours a day have completed it ?

9. Find the present value of £1363 due five years hence at $3\frac{1}{2}$ per cent. per annum simple interest.

10. A sum of £8505 invested in the Three per Cents. produces an income of £252 : what is the price of the stock ?

11. Extract the square root of ·892143 of $12\frac{1}{7}$ square feet.

12. 800 yards of cloth are bought at 10*s.* 6*d.* per yard ; half is sold at 10*s.* per yard, a fifth for 11*s.* ; at what price must the remainder be sold to obtain a gain of $5\frac{1}{2}$ per cent. on the whole?

EUCLID, ALGEBRA, AND MENSURATION.

Three hours allowed for this paper.

Candidates who attempt either of the questions in Mensuration must omit questions 11 and 12. (Marks are given for portions of questions.)

EUCLID.

In the Euclid questions all generally understood abbreviations for *words* may be used, but no symbols of *operations* (such as —, +, ×,) are admissible.

N.B.—Capital letters, not numbers, must be used in the diagrams.

1. If two triangles have two sides of the one equal to two sides of the other, each to each, and have likewise their bases equal ; the angle which is contained by the two sides of the one shall be equal to the angle contained by the two sides, equal to them, of the other.

On the base of an isosceles triangle an equilateral triangle is described : show that the line joining the vertices of the two triangles bisects their common base at right angles.

What is the axiom on which Euclid bases his reasonings on parallel lines? Is Proposition 17 of the First Book the converse of that axiom? If so, is there any objection to the axiom ?

If a straight line falls on two parallel straight lines, it makes the alternate angles equal to one another, and the exterior angle equal to the interior and opposite angle on the same side ; and also the two interior angles on the same side together equal to two right angles.

3. In any right-angled triangle, the square which is described on the side subtending the right angle is equal to the squares described on the sides which contain the right angle.

From the middle point of a side of a right-angled triangle a perpendicular is drawn to the hypotenuse ; show that the difference of the squares on the segments into which it is divided is equal to the square on the other side.

4. By what proposition of the First Book is it proved that the area of a triangle whose altitude is a units long, and whose base is b units long, is $\frac{1}{2}\,a\,b$?

If a straight line be divided into two equal parts, and also into two unequal parts, the rectangle contained by the unequal parts, together with the square on the line between the points of section, is equal to the square on half the line.

5 Why cannot we satisfactorily demonstrate propositions of the Second Book by algebraical processes ?

In every triangle, the square on the side subtending an acute angle is less than the squares on the sides containing that angle by twice the rectangle contained by either of these sides, and the straight line intercepted between the perpendicular let fall on it from the opposite angle and the acute angle.

ALGEBRA.

6. Express algebraically :—the fourth power of the sum of two numbers (a and b), together with twice the product of their squares is equal to the sum of their fourth powers together with four times the product of their product and the square of their sum. Also verify it when $a=2$, $b=3$.

7. Subtract :—
$(x+y)(3a-2b)$ from $(x+y)(3a+2b)$; and divide $x^2+y^2+1-2y+2x-2xy$ by $x+y+1$.

8. Prove the rule for dividing one algebraical fraction by another, the letters denoting any numbers.

Simplify $\left(x+2+\frac{4}{x-2}\right)\div\left(\frac{x^3}{x^2-4}-x\right)$

9. Solve the equations :

1. $-17\left(x-\frac{4-x}{3}\right)=12\left(5x-\frac{7+3x}{8}\right)$.

2. $\begin{cases}32x+81y=45.\\28x-39y=369.\end{cases}$

3. $\frac{3x}{x+2}-\frac{x-1}{6}=x-9.$

10. Prove that the difference between the cube of the sum of any two numbers and the sum of their cubes is divisible by three times their product.

EUCLID.

11. To draw a straight line from a given point without the circumference, which shall touch a given circle.

Show that two such lines can be drawn, and that they are equally inclined to the line which joins the given point with the centre of the given circle.

12. If a straight line touch a circle and from the point of contact a straight line be drawn cutting the circle, the angles which this line makes with the line touching the circle shall be equal to the angles which are in the alternate segments of the circle.

Write out the converse of this proposition.

MENSURATION.

13. The area of a chess-board which contains 64 equal squares and an outer rim an inch wide, is 134·56 square inches : find the side of each square. Find also the width of the outer rim of another board of the same size, in which the area of each square is 1·361 square inches.

14. The three sides of a triangle are in the ratio 4 : 5 : 7, and their sum equals 32 yards, find the area of the triangle in yards, to two places of decimals.

FEMALE CANDIDATES.

ARITHMETIC.

Three hours allowed for this paper.

Candidates are not permitted to answer more than *one* Question in each Section.

The *solution* must in every instance be given at such length as to be intelligible to the Examiner, otherwise the answer will be considered of no value.

SECTION I.—1. The first of 4 parcels of money contained two hundred and six pounds, and twopence ; the second fifty sovereigns, seventeen half-sovereigns, and nine half-pence ; the third twenty-seven half-guineas, and eightpence: the fourth nineteen half-sovereigns, and three half-crowns. Distribute the amount equally among 29 societies.

2. One room contains 18 sq. yds., 3 sq. ft., 19 in.; a second, 42 sq. yds., 8 ft., 11 in.; a third, 29 sq. yds., 5 ft. 100 in. What must be added or subtracted in each case to make the rooms of average size?

SECTION II.—A silversmith made a certain number of teaspoons weighing 26 lbs. 10 oz. 13 dwt., and a certain number of tablespoons weighing 38 lbs. 10 oz. 11 dwts. 18 grs.; find the cost of all the spoons at £3 17*s.* 11*d.* per oz.

State the different methods employed in subtraction, and give your reasons for preferring one of them to another.

2. A farmer rents a farm of 400 acres on the following terms:—He pays as rent 100 qrs. of wheat, 75 qrs. of barley, and 60 qrs. of oats, the price of wheat, barley, and oats being respectively 49*s* 6*d.*, 30*s.* 8*d.*, and 19*s.* 2*d.* per quarter. Give his average rent per acre in £. *s. d.*

SECTION III.—1. Make the following bill:—5 tons of coal at 15*s.* 6*d.* per ton, carriage of same at 2*s.* 6*d.* per ton ; 2 trucks of gravel (*i.e.*, 11½ tons) at 5*s.* per ton, carriage of same at 2*s.* 6*d.* per ton.

What are the two different kinds of *practice* called? Which kind is mostly used in bills of parcels? Give reasons for your answer.

9. Find the change out of a £10 note after paying the following bill:—12½ yds. of flannel at 1*s.* 6*d.* per yd., 37 yds of calico at 1*s.* 0½*d.* per yd., 21 yds. of muslin at 2*s.* 4¾*d.* per yd., 18 yds. of linen at 2*s.* 6*d.* per yd.

What is a *Bill of Parcels*? What else is it sometimes called? What rules of mental arithmetic can be applied in finding the amounts of the items?

SECTION IV.—1. Find by practice the rent of 311 acres 2 roods 26 perches at 5*s.* 8¼*d.* per rood.

What rule does practice depend upon? And how is that rule simplified by it?

2. A bankrupt can pay only 12*s.* 6*d.* in the pound, and his debts amount to £1,537 4*s.* 4*d.*; what is his estate worth? How much will be paid on a debt of £276 11*s.* 6*d.*?

What is meant by an "*aliquot*" *part?*

SECTION V.—1. The planting of a rood of ground cost £28 8*s.* 4*d.*; what was paid for planting 23 acres 3 roods 24 perches and 11 sq. yds.?

Explain and define *measure, factor, multiple, submultiple.*

2. Bought 176 yds. 2 qrs. 2 nails, 1½ inch, at 18*s.* 9*d.* per English ell (=5 quarters); what is the gain or loss in selling at 6*d.* per inch?

Explain the terms *profit and loss—profit and loss per cent.*

SECTION VI.—1. If the road in front of a row of houses, three-quarters of a mile long, be repaired at a cost of £7 9*s.* 6*d.*, what portion of the expense should be paid by an inhabitant, whose premises have a frontage of 18 yds. 2 ft.?

Explain the difference between "*ratio*" and "*proportion.*" How many kinds of proportion are there? State and explain the names given to several parts in a proportion sum.

2. An engine of 16-horse power can pump out $\frac{2}{5}$ of the water in a reservoir in 3 days, working 7 hours a day. In how many days will an engine of 15-horse power, working 8 hours a day, empty the reservoir?

By what methods can the work be shortened in a proportion sum? Explain why these methods are correct.

SECTION VII.—1. Two-sevenths of a farm is sown with wheat, four-ninths of it is pasture, and the remainder, woodland, contains 24 acres, 2 roods, 7 perches. Find the size of the farm.

What is a fraction? Name the different kinds of vulgar fractions, and distinguish between them.

2. If the owner of $\frac{4}{17}$ of a ship sold ($\frac{3}{11}$ of $\frac{2}{9}$ths of his share for £$\frac{4000}{33}$, what was the value of $\left(\frac{1\frac{1}{4}}{4\frac{1}{4}}\text{ of }\frac{2}{5}\right)$ths of the whole ship at the same rate.

Give and explain the names of the different parts of a vulgar fraction, and show their relation to each other, and to the integer.

SECTION VIII.—1. How much will remain of $\frac{7}{9}$ of £25·2, after the following articles have been paid for, viz. :—1$\frac{1}{5}$ yds. of cloth at £0·8 per yard, and 12·2 yds. of linen at £0·125 per yard? Give the answer in decimal form.

Name the different kinds of decimals, and distinguish between them.

2. Find the value of $\frac{3}{4}$ of $\frac{1}{9\frac{1}{2}}$ of £1 18*s.* + $\frac{2}{3}$ of 0·0375 of 15*s.* + $\frac{2}{3}$ of $0\cdot4\dot{2}9$ of 8*s.* 3*d.*, and express the result as the decimal of £5.

How may a vulgar fraction be converted into a decimal? What kind of vulgar fraction can produce no *finite* decimal? Explain why.

SECTION IX.—1. In what time will £436 10*s.* amount to £568 18·1*s.* at 7 per cent. per annum, simple interest?

Define "*principal,*" "*amount,*" "*interest,*" (simple and compound), "*discounts,*" "*stocks,*" "*annuities.*"

2. A farmer mixes wheat ; 9$\frac{3}{5}$ qrs. at 38*s.* 6*d.*, the same quantity at 40*s.* 6*d.*, and at 42*s.* 9*d.* per quarter, and 24$\frac{3}{5}$ qrs. at 45*s.* and the same quantity at 47*s.* per quarter. What is the average price of the mixture?

What is a *percentage?* an *average?*

DICTATION AND PENMANSHIP.

Twenty minutes allowed for these exercises.

Candidates are not to *paint* their letters in the *Copy-setting Exercises*, but to take care that the copy is clean and without erasures.

Omissions and erasures in the *Dictation Exercise* will be counted as mistakes.

The words must not be divided between two lines; there is plenty of room for the passage to be written.

Write in large hand, as a specimen of Penmanship, the words *Major Fitzgerald.*

Write in small hand, as a specimen of Penmanship, the sentence—

There is a willow grows aslant a brook,
That shows his hoar leaves in the glassy stream.

DICTATION.

(*For the Examiners.*)

The passages A, B are to be given alternately if the number of Candidates is large and there is danger of copying. If one is enough, give the first (A).

The passage should be read *once* distinctly, and then dictated *once* in portions as marked.

If the room is large, and there is danger of your not being heard at its extremity, you may permit one of the officers of the college to stand half-way down the room, and repeat the words after you exactly as you give them out.

It is essential that there be no complaint on the part of the Candidates that they could not hear or understand; you can only prevent this by clearness, accuracy, and audibility.

A.

They paddled onward hour after hour, | sheltering themselves as best they could | under the shadow of the southern bank; | while on their right hand | the full sun-glare lay | upon the enormous wall of figs, and laurels, | which formed the northern forest, | broken by the slender shafts of bamboo tufts, | and decked with a thousand gaudy parasites; | bank upon bank of gorgeous bloom | piled upward to the sky, | till where its outline cut the blue | flowers and leaves, | too lofty to be distinguished by the eye, | formed a broken rainbow of all hues | quivering in the ascending streams of azure mist, | until they seemed to melt | and mingle with the very heavens.

B.

As the sun rose higher and higher, | a great stillness fell upon the forest. | The jaguars and the monkeys | had hidden themselves | in the darkest depths of the wood, | the very butterflies ceased their flitting | over the tree-tops, | and slept with outspread wings | upon the glossy leaves, | undistinguishable from the flowers around them. | Now and then a parrot swung | and screamed at them from an overhanging bough; | or a thirsty monkey | slid lazily to the surface of the stream, | dipped up the water in his tiny hand, | and started chattering back, | as his eyes met those of some foul alligator | peering upward | through the clear depths below.

ANSWERS TO THE MATHEMATICAL QUESTIONS

Males.

ARITHMETIC.

1.—12,481,875.
2.—Eldest brother's share, 5a. 2r. 14p.; each younger brother's share, 3a. 2r. 36p.
3.—£784 2*s.* $9\frac{19}{20}$*d.*
4.—$8\frac{11}{12}$*d.*; $\frac{1}{6}$.
5.—·369140625; 1 ft. 1·2890625 in.
6.—See Moffatt's Scholarship Answers, 1882.
7.—10 yards.
8.—10 days.
9.—£1160.
10.—$101\frac{1}{4}$.
11.—$3\frac{85}{250}$ ft.
12.—12*s.* $11\frac{1}{10}$*d.* per yard.

ALGEBRA.

6.—$(a+b)^4+2a^2b^2=a^4+b^4+4\{ab\ (a+b)^2\}$
7.—$4b\ (x+y)$; $x-y+1$.
8.—$\frac{x\ (x+2)}{4}$.
9.—(1) $\frac{199}{489}$. (2) $x=9$, $y=-3$. (3) 10, or $-1\frac{4}{7}$.
10.—$(a+b)^3-(a^3-b^3)=3ab\ (a+b)$.

MENSURATION.

13.—1·2 in.; $1\frac{2}{15}$ in.
14.—39·19+sq. yds.

Females.

ARITHMETIC.

SECT.

I.—(1) £9 19*s.* $0\frac{1}{2}$*d.* (2) 11 sq. yds. 8 sq. ft. $72\frac{1}{3}$ sq. in. to be added: 12 sq. yds. 5 sq. ft. $63\frac{2}{3}$ sq. in. to be subtracted; 5 sq. ft. $135\frac{1}{3}$ sq. in. to be added.

II.—(1) £3074 14*s.* $9\frac{1}{16}$*d.* (2) £1 1*s.*
III.—(1) £8 16*s.* 3*d.* (2) £2 7*s.* $4\frac{3}{4}$*d.*
IV.—(1) £344 10*s.* $3\frac{69}{80}$*d.* (2) £172 17*s.* $2\frac{1}{4}$*d.*
V.—(1) £2716 17*s.* 10*d.* (2) Gain, £26 10*s.*
VI.—(1) 2*s.* $1\frac{61}{165}$*d.* (2) 7 days.
VII.—(1) 90 a. 3 r. 33 p. (2) £1000.
VIII.—(1) £16·635. (2) 4*s.* $9\frac{1}{2}$*d.*; ·047916 of £5.
IX.—(1) $4\frac{1}{3}$ years. (2) 44*s.* per quarter.

Practical Department.

SCHOOL GOVERNMENT.*

After urging the necessity of beginning in the right way the moral discipline of children, and explaining the origin of moral government in the family circle, the writer says:

"Next to the government of the home comes that of the school, and this we are now called upon more particularly to consider. First, then, we may contemplate the motives which should actuate the minds of children in rendering obedience. These motives may be many and varied, and in different schools or under different teachers different ones will prevail. For instance, in one school we will find that the degree of respect in which the teacher is held is the governing principle. In another he is beloved for his amiable qualities, and hence the desire to please him. In another the teacher in constructing his code of laws, has succeeded in making it both strict and popular. Again, in others some important interest of the pupil is made to do duty as a governing principle. In most of our best schools, however, different motives combine for the attainment of the desired end. In any case, whatever course be adopted, in order to the securing of proper order and cheerful obedience, should be such as will promote the growth of a spirit of kindness among pupils, and of every trait of character which adorns and ennobles the mind.

We are now to consider the best methods of detecting wrongdoing among pupils. In this, as in everything pertaining to his Profession, the teacher should adopt such measures as will convince the pupils that guilt cannot escape detection, then most of his difficulties in this direction are overcome. A few general principles may be laid down for the guidance of beginners, but success or failure will depend very much on the ingenuity of each teacher in the arrangement and perfecting of details.

Discourage and root out talebearing, if it exists in your school. Punish pupils sharply for bringing you information unsolicited. Encourage truthfulness in your pupils when placed under examination for the purpose of detecting wrongdoing. Many people consider a boy a hero who will prefer to undergo the most rigorous punishment rather than "peach" upon a comrade under examination. The same people should be consistent and heap honors upon the man who will lay perjury upon his soul in open court, or who will commit even a worse act in order to defeat the ends of justice. I have no sympathy with such notions of honor. If it is right and proper for men before properly constituted authority to bear witness against men for the maintenance of order in society, then it is right and proper for children to do the same thing under similar circumstances.

Few honorable men or women will stoop to play the spy upon their pupils. Do not permit your pupils to play the spy upon the actions of each other. This will exist in some schools to a greater or less extent. It is the offspring of jealousy, envy, or some maicious feeling. Stamp it out, for both it and its progenitors are

* Abridged from a paper read by Mr. S. Armour, before the East Victoria Teachers' Association.

alike dangerous to the harmony and unity of your school. Enlist the sympathy and co-operation of your pupils in the maintenance of order. It will be easy to convince one that if his next neighbor has, unknown to you, transgressed certain rules which he has religiously kept, the former has attained an undue advantage over him through fraud. Point out the dishonorable nature of such conduct. Ask pupils frequently if they have kept or broken this, that, or the other rule or instruction. Begin with those most likely to have obeyed them. The consciousness that they may at any moment be questioned relative to their own conduct or that of their classmates will render pupils more cautious, and with judicious management this caution may be increased until transgression of rules, or disobedience in most particulars is of rare occurrence. Certain allowances, however, should be made. Children are naturally thoughtless, and where disobedience to commands has occurred in this way, the pupil should be encouraged to come to you privately and mention it. A word of caution from you then will, in most cases, produce the best results.

Having perfected a system of detecting misdeeds, the question of punishment becomes one of secondary importance. Of course, I here assume the existence of rewards, in some form, for the faithful discharge of duty. But a teacher who has a large majority of his pupils well affected to the regulations which he has established, entertaining a proper respect for his person and opinions, and ready if need be to see justice done to any offender, even to their nearest friends, has need but seldom to resort to serious punishment; but cases do arise when such is needed, and these we may proceed briefly to consider. By associating pleasure or pain with actions of children we may, even before the development of the reasoning faculties, give their minds a set in the right direction, for it is natural for children to practise such habits as are followed by rewards or pleasures, while at the same time they will shun the practice of such as are followed by pain.

In the infliction of punishment in any form we should avoid all appearance of fretfulness, peevishness, or anger; the sufferer will then attribute his pain to his offence, while he will regard his ruler as just and generous. Since implicit obedience is the principal object to be attained in school government, it may be well to consider how to obtain it. I would begin by instructing children to perform duties that would cause pleasure; in short, tell them to do duties that they would do of themselves if they but thought of it. As obedience becomes habitual they may be ordered to do duties less attractive, and so on to those that may even excite dislike. Endeavor as much as possible with small children to turn work into play. On the contrary, you may often cure a pupil of over attachment to play by turning it into work. For instance, a boy too fond of playing marbles might be cured by ordering him not to desist until he had won two or three hundred marbles. Punishments have been classified by some into major and minor, the former generally meaning all forms of corporal punishment. I am not sure that corporal punishment presents most terrors to children's minds, especially to those of refined natures. Since punishment is inflicted in order to bring about moral reform, I should say that, to be most successful, we must look outside of the range of corporal punishments. Solitary confinement I believe to be one of the best methods, if properly exercised. Under its influence, the offender has time for dispassionate reflection, and, if it be accompanied with wise and kindly admonition, it will seldom fail to produce good results. This form, however, is not so well adapted to school life as it is to domestic rule, as the pupil is not permanently under the control of the teacher.

Reproof is good; but reprove only, do not reproach. Avoid ridicule; it has a similar influence on the minds of pupils. Hold up the fault to sneers and ridicule if you will, but spare the offender any degree of exposure. Do not, as a rule, administer reproof in public; nearly all will listen with some feeling more like contrition in private.

A LANGUAGE LESSON FOR THE SECOND READER CLASS.

I. The Subject Matter of the Lesson.—"*The swing.*—Frank has made a swing for Lucy and little Tom. It is in the old apple-tree that stands by the gate. Amy has come to visit Lucy and Tom, and they are giving her a fine swing. See how Tom can run under! Lucy has her hat on, but the wind has blown Amy's hat off. You can see it lying on the ground. It is May. The grass is fresh and green. On the apple-tree, little pink buds peep out from under the leaves. Soon those buds will open into pink blossoms, and fill the air with a sweet scent."

II. Study of the Lesson.—1. The pupils read the lesson until fluency is acquired.

2. The teacher induces the pupil to discriminate the parts of each sentence. The pupil answers in complete sentences, emphasising the word containing the answer. Who has made a swing? *Frank* has made a swing. How did Frank obtain a swing? Frank *has made* a swing. What has Frank made? Frank has made a *swing*.

3. The teacher induces the pupil to discriminate the sentences of the lesson. What is said of Frank? Frank has made a swing for Lucy and little Tom. Where is the swing? It is in the old apple-tree that stands by the gate. What is said of Amy, etc.

4. The teacher induces the pupil to discover the relations which exist among the parts of the lesson.

Sentence first expresses how the swing was obtained.

The second sentence expresses where it is.

The third and fourth expresses its use.

The fifth and sixth describes a little accident while the swing is used.

The seventh expresses the time of its use.

The eighth, and ninth and tenth describe the grass and the pink buds of the apple-tree at that time.

5. The teacher discusses with his pupils the persons and things mentioned in the lesson.

The persons: Frank. Amy, Lucy, Tom.

The things: The swing, the hats, the grass, the apple-tree.

III. Composition.—1. The teacher requires the pupil to write the lesson with changed person and number. I have made a swing for Lucy and Tom. It is in the old apple-tree that stands by the gate, etc.

Capitals and punctuation marks as in the book.

2. The teacher requires the pupil to write the lesson as if Frank and Tom made the swing. (Change of number.)

3. Change of the subject-matter. Frank has bought a little waggon for Lucy and little Tom. He bought it from a man who has a store on the corner. Amy has come to visit Lucy and Tom, and they are giving her a fine ride. See how Tom can push, etc. It is June, etc.

4. Describe a swing. (For older pupils.) This last request is too difficult for the Second Reader class, as the uses of punctuation marks have not been taught yet.

IV. Grammar.—The word Frank is used as the name of a boy. The word Lucy is used as the name of a girl. The word gate is used as the name of a thing. Persons and things are called objects. Words used as the names of objects are called nouns. Nouns are words used as names. They may be the names of persons, as Lucy, Tom; or the names of things, as gate, apple-tree. Find nouns in your compositions. Why are they called nouns?

V. Spelling.—The teacher requires the pupil to write from memory part of the lesson, with diacritical marks, division of syllables.

Note for the teacher.—This lesson is designed to show how reading, spelling, composition, grammar, and study lessons can be concentrated into one subject, one study preparing the others. The language lessons of the Third Reader class should be, on the whole, the same. But word-analysis should be added. In the class of the Fourth Reader the study of synonyms, the forms of composition, and the properties of style should be added; in the Fifth Reader class, biographical notes of the authors should prepare for the study of English Literature. Geographical, scientific, and literary notes should accompany the lesson whenever necessary to a complete understanding of the lesson.—C. FALK, *in N. C. Journal of Education.*

ENGLISH SPELLING.

Sooner or later the movement in favor of reforming our English Spelling is sure to find a certain amount of support amongst the teachers, and as one sign of the approach of the coming agitation it is interesting to note that some educational journals in the United States are giving up to it a portion of their space. At the recent Social Science Congress held at Saratoga, the Rev. H. L. Wayland of Philadelphia indulged in some very strong language on the subject, Amongst other things he said:

"If it were proposed to introduce such a system, we should cry out in amazed, indignant horror; nothing makes it tolerable for an instant, save the fact that we were born into it, and that we had become wonted to all these atrocities before we had sufficient power of reason to understand how monstrous they are. Consider the harm to the child's mind, to his reasoning powers. We say to him: 'Here is this letter; it has this sound, this force.' But he then finds it is purely a matter of chance whether it has this sound, or something entirely different. * * It is because the child's moral nature has great staying powers that it is not wholly perverted. We say: 'Final e, when silent, makes the vowel of the syllable long.' So the child says, 'b-a-d-e, bade,' and we say, 'no; that is bad.' The child says 'definite,' and we say, 'Oh no; that is definit.' Silent e is a lie. Truth may lie at the bottom of a well; but it certainly does not lie in the primer."

The word e-i-g-h-t, Mr. Wayland says, "is a fraud; out of the five letters composing it only one has the sound that properly belongs to it." The *American Journal of Education* quotes, in a recent issue, the following passage from "The Caxtons," by the late Lord Lytton:

"A more lying, round-about, puzzle-headed delusion than that by which we confound the clear intellect of truth in our spelling, was never concocted by the father of falsehood. How can a system of education flourish that begins by so monstrous a falsehood, which the sense of hearing suffices to contradict?"

A comparison of such opinions with those expressed by Professor Meiklejohn, in his "Problem of Teaching to Read," and with the views of Professor Max Müller and other eminent philologists will serve to show that the defects of our English alphabet and the anomalies of our English spelling continue their existence in the face of a strong and growing desire to remove them. The question how far teachers should fall in with any movement in this direction is an important one. No such movement can ever become a complete success without their aid, and sooner or later they will find themselves compelled to take up some attitude in the discussion. Those of conservative tendencies of mind will be the last to recognize the expediency of doing anything to simplify our spelling, while the more enthusiastic members of the profession will render the so-called spelling reformers cordial assistance. In view of the coming agitation it is worth while to at least inquire what the reformers propose to accomplish.

They may be arranged in three classes. The first comprises those who seek to correct such anomalies as may be corrected without any change of alphabet. They admit that such a measure of reform would not be thorough, but they contend that it has the merit of being feasible. Words similarly pronounced should, in their view be similarly spelled, so far as our present defective alphabet will admit of it. Some would carry this reform much further than others are willing to do, but in principle and method they are at one. To this class belonged Dr. Webster who, however, was ahead of his time as an orthographical purist.

The second class of spelling reformers embraces those who wish to retain our present alphabet and add to it new characters enough to make it perfect. It is evident that these have undertaken a much heavier contract than their fellow-reformers of the first-class. The introduction of new letters to the number of from fifteen to twenty causes the commonest words to take on a foreign look, which must prove an obstacle in the way of the advocates of this method.

The third class includes those who seek to dispense altogether with the present defective alphabet, and substitute a new one which would combine the quality of simplicity of form with that of constancy in the use of the letters. They argue that if we are to go at all beyond the scheme of reform possible within the limits of our present alphabet, it is unwise to stop short of such a complete measure as would be impossible without a totally new set of marks to represent spoken sounds. They allege that the confusion caused by these new marks would be no greater than that caused by necessary additions to our present alphabet, and they contend that the new marks might be made very much more simple in form than those which have come down to us from sources some of which are now of great antiquity. Such a new alphabet is employed by all shorthand writers, whether they write from sound, as in Phonography, or use arbitrary symbols, as in the system called "takigraphy."

This whole subject is commended to the earnest attention of teachers. Whether they approve of any attempt at reforming English Spelling or not they will derive great benefit, even in teaching the written language as it is, from a thorough course in the phonetics of English and the history of the alphabet.

CHATS WITH BEGINNERS.

Assuming, my young friends, that, with a true appreciation of the responsibility of your chosen profession, you have given yourself professional training therefor, let us chat together of some little matters that do not hold a definite place in the curriculum of the best normal school.

You have completed the prescribed course of study for teaching, and armed with note-books and methods, accept your first school with a strong determination to win a name and position among good teachers. You believe that the teacher wields a powerful influence over her pupils, and with glistening eyes and throbbing hearts have listened to glowing descriptions of what the true teacher may accomplish for a human soul. In the solitude of the great congregation, in the depths of your own heart, you have registered the vow, "I, too, will be such a teacher!" The dreaded examination is waived in deference to your blue-ribboned diploma, or, with courageous heart and sound knowledge, you have met and answered the questions of the town committee. Perhaps you have left home for the first time, and already realize what otherwise you will soon learn, that you are no longer "child" but "woman" forevermore. You will leave your new boarding-place for your school room, morning after morning, for weeks to come. Pause a moment before you place the pretty hat upon your head.

"The teacher should be herself what she wishes her pupils to become." Is the hair so neat, so glossy and shining that, though God has not given you beauty of face, yet you are a "vision fair to see?" Are the teeth so clean and shining, that, by-and-by when you explain to your pupils the pleasure of looking at the mouth of

one whose teeth are nicely cared for they will see that what you say is true. Finger nails have a way of showing the character of their possessor : what is the legend inscribed on yours ?

As the weeks go by, you fall into the routine of school-duties. You find a great deal of work to be done at home, out of school-hours, and, with a strong sense that you must do that faithfully and conscientiously, you correct the examination papers and spelling blanks, and go to bed tired and stupid, forgetting that as you closed the school-room door you tore the braid from your dress, and put a pin in it until you should reach home. Don't forget it to-morrow morning ! Do not fail to give yourself the elevating, the sanctifying influence of clean collars, cuffs, and handkerchiefs. Try it some day when everything has seemed to go wrong ; when your head aches, and slates are needlessly noisy ; when your best boy seems to have no liking for study, and your brightest girl seems hopelessly stupid. When you go home to dinner, pin in clean collar and cuffs, and put on a fresh tie. If you have time re dress your hair. You will go back to school refreshed, and the flash of your clean white linen will be a satisfaction to which no woman of refinement can be wholly insensible.

You think the children are behaving better this afternoon. Perhaps they are, but it is more likely that your own nerves are somewhat soothed ; your voice is pleasanter, and the children are not often unresponsive to cheery tones. They certainly are more attentive to you, and perhaps the whisper will go around, "How pretty the teacher looks this afternoon !" though you may have the dress on you have worn for months.

And here let me suggest the wisdom of having two dresses for school-wear, instead of one, as is often the case with teachers of limited means. Despise nothing, however small, that lifts you out of the ruts of monotony. Wear your three or four ties alternately, a day or two at a time, instead of wearing them out in order. Tie them differently.

Relieve the plain blue by a simple daisy, or the white by a sweet-brier rose. Wear a bunch of daisies at your belt, and see if your worst boy will not soon bring you something else to wear. Be sure to wear his flowers though they be peonies or sunflowers.

In short, study to make yourself just as pretty as possible to the eyes of your children. This is a lesson learned from personal experience. Like many another young girl, I thought my tastes favored quiet, sober colors for myself, though I revelled in bright hues for girls who,—well who were not school teachers. One day, in what seemed a fit of barbarism, I twisted together pale blue and pink ribbons and, half-ashamed, went back to school with knots at the throat and belt.

Before the bell rang, Willie Riley, a little, lame Irish boy from a wretched home, entered the school-room ; with a hasty glance at his teacher, he hobbled back to the door as fast as his poor little crutches could carry him, and without waiting to close it exclaimed, "Oh, ! teacher's got on a new bow, and she looks awful handsome !" Whereupon the teacher did a little moralizing and deduced the rule given above, which she has never yet seen reason to modify. Let the dress be simple, but bright and varied.

Many stories might be related illustrating the pleasure of the children in a teacher's brightness ; as of the little boy, who said to his teacher, "Teacher, I love you dearly in the blue bow, and I love you dearly in the red bow, and I can't tell you which I love you in best !"

A town in Western Massachusetts saw one of its schools steadily retrograding, under a succession of incompetent teachers, and the bad influence of several large, unruly boys. The following conversation took place at the opening of a term between one of these boys and a resident of the town :

"Going to school this term, George ?'

"Yes."

"Well, I hope you will behave yourself. You have made trouble enough."

"Wal, if the teacher fixes up, and curls her hair, I will ; an' if she don't I won't"

The new teacher, a little girl of sixteen did "fix up," and she won for her school a good name.—*Ida M. Gardener, in the Central School Journal.*

Promotion Examinations.

The Editor of this department of the SCHOOL JOURNAL will be pleased to answer any questions arising out of the practical working of promotion examinations.

The good effect on the Public Schools of the regular examinations for entrance to the High Schools, led many inspectors and teachers to think a uniform system for promotion among the classes lower than the fourth, would be of much benefit in stimulating pupils, and in checking the improper influences often employed to secure transfers from one class to another. Various schemes for preparing questions, conducting the examination, reading the answer papers, and reporting the results, have been devised in many of the inspectorates. The main object in all of these is to provide such a test as will meet the approval of the average teacher. To him who neglects his school, or cares little for his profession, examinations are wholly useless ; consequently, he cannot be satisfied with any method not begun and ended by himself. We are glad to know that in many counties a sound, practical system of promotion is adopted, that the teachers take a lively interest in the examination and have no desire to return to the former practice. Still there are other counties wrestling with the question. For their assistance we submit the following hints :

Bring up the subject for discussion at the Teachers' Association. If there is no one teaching in the division who understands the mode of procedure, have a teacher or inspector from some other county who can fully give the details. Objections may be raised and answered, but, after a careful investigation, it will likely be found a majority of the teachess are willing to try before they condemn. If, however, a vote cannot be carried in favor of promotion, there remains no alternative but to wait in the hope that opinion will change. Few teachers object to receiving questions for promotion, but they wish to read the answers themselves. Even this, though not enough, should be accepted, as it makes an excellent starting point, and may develop into what is not objectionable.

Assuming that the Association is in favor of a uniform method, the next step will be to make provision for preparing and mailing questions, reading answers and reporting the results. No one should be better qualified to set questions than the inspector, or some teacher thoroughly acquainted with the standing of the schools for which they are prepared. The questions should be printed and a copy sent for each candidate intending to write. Teachers can easily give notice to the proper person of the number of candidates in each class. The package of examination papers should not be opened till a few minutes before the hour for commencing to write.

To conduct the examination, which need not continue more than two days, let each teacher change schools with some other teacher named by himself, the executive committee of the Association, or the inspector. Doing this need not cause any inconvenience ; in fact, it may prove an interesting relaxation from the round of every day duties. Besides, it removes the possibility of being charged with partiality, and provides a competent presiding examiner with very little trouble and expense. It would be well, when practicable, for one of the trustees to preside with the strange teacher.

The teacher of the school should leave on his desk the package of questions unopened, a list of the candidates, sufficient paper, envelopes, &c., for the examination, so that the presiding examiner would have nothing to do but see that the answering was done fairly and properly in every respect. At the close of the examination the answers to each subject should be placed in a large envelope, the ends cut off, and the envelopes bound in one package and forwarded to the person appointed to receive them for distribution among those appointed to read answers.

The examiners should meet immediately after the reception of the answer papers, carefully discuss each question, attach values to the answers, and decide the percentage required to pass. To ensure uniformity and dispatch, each examiner should use only one subject: one takes 2nd arithmetic, another 2nd writing, a third 2nd literature, &c. The examiners should report results to the inspector on or before a specified term. He will enter them in a book or books for the purpose—one book for each municipality is a good method. After the entries are made, each school should be reported to the teacher thereof, in order that he may mark the necessary promotions. All the packages should be returned to the inspector by the examiner. In case of dissatisfaction with the marking, the inspector and teacher can look over the answers and correct either errors or omissions. Each subject being in a separate envelope, the township and section on the outside, a few minutes will find the package and read the answers. Otherwise, the Association might appoint a board of appeal to consider any causes of complaint.

One other feature remains to be noticed. How are the necessary funds to be provided? The cost of printing for two examinations yearly need not exceed $25. Mailing packages, one cent each, say $2, having answers, if volunteers cannot be found, $100; total $127, or thereabouts. This sum, not very large, may be contributed by the teachers; or better, get the county or township councils to make a grant. Most county councils are willing, on hearing the merits of the scheme well discussed, to set aside a sufficient sum to pay all reasonable expenses.

QUESTIONS FOR PROMOTION.

LITERATURE.

CLASS II. TO CLASS III.

1. Write five words that should begin with capital letters; also five others requiring a hyphen.

2. Tell, in your own words, the story of "The Dog and the Shadow." What do we learn from this story?

3. What word or words mean the same as the following: Constant, unnoticed, diverting, amiable, treacherous, brazier, determined, dignity, carcass?

4. From what lesson is this verse taken?

Angry words! oh let them never
From the tongue unbridled slip;
May the heart's best impulse ever
Check them, e'er they soil the lip.

Why is it wrong to use angry words? What is the meaning of "unbridled," "heart's best impulse," "check," and "soil"?

5. Spell the following words, using an apostrophe in each: passed, over, I will, do not, they are.

6. Carefully write one verse from each of these lessons: "Meddlesome Matty," "The Beggar-Man," "Who taught them," "Evening Hymn."

7. Give the names of these marks: , ; : ! ? " " Answer by making the mark and writing the name opposite.

III. TO IV.

1. What advice was given by the lawyer to Peter Bernard? Show that this advice may be useful to us.

2. Tell the story of Grace Darling. What three proofs were given that her conduct attracted attention?

3. Write notes on the habits and uses of the following animals: Whale, moose-deer, buffalo, cat, wolf, tiger, and elephant.

4. From each of the following selections write one verse: "Casabianca," "Look Aloft," "Speak Gently," "The Mouse's Petition," "Lucy Gray."

5. Give the meanings of italicized words:

1. The *mandibles* of the spider were *buried* in its throat.
2. Beavers are found in an *inhospitable climate.*
3. They live by *violence* and *rapine.*
4. His rough voice was reverberating in its *recesses.*
5. I am *unconscious of peril.*
6. By sharp instinct the *fraud* was *detected.*

6. By examples, two for each, show that you know where to use the period, point of interrogation, quotation marks, and note of exclamation.

GRAMMAR.

III. TO IV.

1. Form a noun from each of these: humble, grace, brief, separate, contrive, perplex, vile, transgress, abstract.

2. Correct the following:

How many wings have an eagle?
Learn me and him this lesson.
Who does the coat belong to?
My horse is larger than your's.
Every child in school should get their lesson.

3. Give the nominative and possessive plurals of—on, pony, woman, son-in-law, and chief.

4. Show by examples, one of each, that you understand—Predicate Nominative, Nominative of Address, Point of Interrogation, Objective after a verbal noun, a Noun in apposition. Tell which each example illustrates.

5. Parse italicized words:

"A *government issuing* paper *currency* is a *bank making* its own *reserve, changing* the amount at *will*, and *exempting itself* from all penalties.

GEOGRAPHY.

III. TO IV.

1. What is meant by the climate of a country? Name the various circumstances by which it is influenced.

2. Name the provinces, districts, and territories of Canada.

3. In what counties are Marmora, Orangeville, Seaforth, Petrolea, Windsor, Oakville, Aurora, Ingersoll, Fergus, and St. Mary's.

4. Name the mineral products of Canada. Tell the province in which each is found in the greatest abundance.

5. State the direction and outlet of any ten Canadian rivers.

6. Give the position of Walkerton, Collingwood, Strathroy, Penbroke, Georgetown, and Lucan. Name a railroad passing through each.

7. Why is it colder in winter than in summer?

ARITHMETIC.

III. TO IV.

1. From the end of a pile of wood 100 ft. long, 6 ft. high, and 4 ft. wide, 5 cords and 120 cubic feet are taken. Find the length of the remainder.

2. How many acres in a piece of land 789 yards long and 114 perches wide?

3. A skating rink is 120 ft. long and 50 ft. wide; how many gallons of water will cover it to the depth of 10 inches? A gallon equals 277 cubic inches.

4. Find the smallest number that will exactly contain any one of the following: 12141, 17271, 5301.

5. By using factors, find how many cubic ft. in 19131712168111-30111 cubic inches. Tell how to find the correct remainder.

6. To the difference between $11\frac{11}{12}$ and $13\frac{13}{16}$ add such a number as will make the sum $17\frac{19}{20}$.

7. What is the cost of plastering a room 20 ft. long, 16 ft. wide, and 10 ft. high, at 20 cts. per sq. yd.?

8. 10000 lbs. of tea are put into boxes, an equal number of each, containing 4 lbs. and 6 lbs. How many will be required?

Notes and News.

ONTARIO.

At the last meeting of the Durham Teachers' Association the following address was unanimously adopted and ordered to be sent to Mrs. Davis, wife of the late S. P. Davis, M.A., of Pickering College:

"We, as a Teachers' Association of the County of Durham, cannot allow this convention to close without expressing our sincere sympathy with you in your sad bereavement.

We desire to accord our feelings of sorrow for having lost a member from our midst who had endeared himself to us, not only by his suavity of manners, but by his gentlemanly bearing and scholarly attainments.

We shall ever remember Mr. Davis as a true friend to our Association and of education generally. He was one of the first members of the Teachers' Association of East Durham, and was a decided fav rite among its members. Little did we think last June when we listened with so much interest to the able address and timely advice given by him to the Teachers of Durham in the Port Hope High School, that in less than six months a kind but unerring Providence would see fit to remove our f iend "to that undiscovered country from whose bourne no traveller returns,"

"From the world's broad field of battle,
From the bivouac of life."

Again we ask you to accept our sincerest sympathy for you in your present severe affliction.

Signed in behalf of the Association,

D. J. GOGGIN, *President.*
G. A. ANDRUS, *Secretary.*

H. M. Hicks, M.A., late head master of Trenton high school has been appointed head master of Colborne high school instead of S. Burwash, M.A., resigned.

H. E. Kennedy, M.A., has accepted the headmastership of Trenton high school at a salary of $1000 per annum. The vacancy in the head mastership of Cayuga high school, caused by his appointment, has been filled by the promotion of A. Cole, B.A., late mathematical master.

The Trenton Board of Education are alive to the growing interests of their high school. Besides other important improvements they have made some valuable additions to the school laboratory and library of reference. The appointment of H. E. Kennedy, M.A., as head master has given the greatest satisfaction. An inspection of the school time-table shows that earnest work is meant this term.

The London model school, under the head mastership of Mr. W. Carson, is making good progress. There are at present twenty-five teachers in training.

At the convention of the South Hastings Teachers' Association last month a remarkably practical feature in the proceedings was a record of "Mistakes in Teaching" observed by the inspector, Mr. Johnston, in the course of his visits to the schools of the county and city. Of course no names were mentioned. If this system were more generally carried out in teachers' meetings, not in the spirit of blame or reproof, but with a desire to improve the working of the school system, the style of teaching, the deportment of the teacher, and the mutual relationships between teacher and pupil, it would be productive of great benefit.

As the result of much industry and ingenuity Mr. J. H. Knight, inspector of East Victoria, has produced a set of maps illustrative of the railway system of Ontario, in minute detail and correct to the most recent dates. Mr. Knight has confined his exposition to railways running in accordance with time tables. He will make a valuable addition to his work if he adds maps of such new railways as the Ontario and Quebec, the Canada Atlantic, and others, which are under construction and will soon be completed. It is needless to say that he has a scheme of geographical and chronological facts to accompany the maps. He exhibited and explained his system at the last meeting of the East Victoria association of which he is president.

J. C. Morgan, M.A., the energetic inspector of public schools for North Simcoe has lately added to his responsibilities by entering the state of matrimony. All his fellow educationists will join in wishing him an ample meed of felicity.

At the recent North Simcoe convention one of the best speeches was made by a lady, Miss Lafferty, in the course of a discussion on reading and literature. It is greatly to be regretted that so few ladies take part in the proceedings of conventions. They might add greatly to the interest and benefit themselves if they would follow Miss Lafferty's example.

Educational matters appear to be in a satisfactory condition in Orillia. The public school is fortunate in being located in a good building and Mr. McKee, the head master, is evidently the man to make the most of his opportunities. Few places can boast of a system and appliances equally perfect. The high school is doing equally well under Mr. Ryerson, whose reputation as a teacher was thoroughly established before Orillia was fortunate enough to secure his services. Orillia is favorably situated for growth, and if one may judge from its educational condition its future is assured so far as it depends on the public spirit of the people.

Barrie collegiate institute, which has been steadily doing good work in the past bids fair to do still better in the future. It is in contemplation to make it still more efficient under Mr. Spotton's principalship in 1883.

Notwithstanding the increase of school accommodation in Toronto it is always insufficient, a clear proof of the continuous and rapid increase of population.

A. F. Ames, B.A., silver medalist in mathematics in Toronto university, and at present assistant in Whitby collegiate institute, has been appointed mathematical master in the collegiate institute at St. Thomas. He enters on his new sphere in 1883.

On the afternoon of Sunday, October, 24th, a large deputation, representing the Anglican, Presbyterian, and Methodist churches, waited on the Hon. Mr. Mowat, Premier of Ontario, to urge upon the government the expediency of making some change in the departmental regulations respecting religious exercises in public schools. Among those present were the following ministers and laymen:—Church of England—Bishop Hellmuth of Huron, the Chief Justice of Ontario, Hon. G. W. Allan, Rev. Mr. Langtry, Provost Body, of Trinity College, of Toronto diocese; with Rev. Canon Belt, Canon Dixon, and Mr. W. F. Pettit, of Niagara diocese; and Rev. Mr. Middleton, of Oshawa, and G. B. Kirkpatrick. Presbyterian Church—Rev. Dr. Cochrane, Moderator of the Assembly; Rev. John Laing, Rev. J. Smith, Rev. Mr. Cameron, Rev. Mr. McLeod, Rev. Mr. Milligan, and Messrs. Dr. Macdonald, John Thompson, of Sarnia, W. T. McMullen, of Woodstock, and James Brown. The delegates had met during the forenoon and organized themselves into a conference, which was presided over by the Rev. Mr. McMullen and at which the following resolutions were unanimously adopted:—"That this Conference pledges itself to press upon the Attorney-General the making of the reading of the Holy Scripture by the children and teachers, together with the prescribed prayers issued by the department, an obligatory exercise at the opening of the public schools of Ontario, the passages of the Holy Scripture to be read each day being prescribed by the department in conformity with the recommendation of the committee of this conference, or some other representatives of the various churches of Ontario, regard being had in all cases to the provisions of the consolidated public school Act, Vic. 37, cap. 28, sec. 142, providing that any parent who has concientious objection shall be entitled to withdraw the child from such instruction; and that this conference press upon the government the necessity for a return to the Scriptural and moral instruction contained in the first series of national readers issued by the educational department for use in the public schools of Ontario, or for some similar Scriptural instruction." These resolutions were supported in moderate speeches by several of the conference, and the Attorney-General replied, stating the law on the subject now and promising to give the matter his earnest personal attention. The Premier was cordially thanked by the chairman of the conference for his courteous response to their representations.

The *'Varsity* for the academical year 1882–3 has made its appearance, and there are in its pages indications of increased vigor and more powerful grasp. The second number speaks out boldly respecting some desirable reforms in and about Toronto University and University College.

MANITOBA.

The seventh annual convention of the Manitoba teachers took place at Winnipeg, on the 13th and 14th of October; Ven. Archdeacon Pinkham, Superintendent of Protestant schools, in the chair. Amongst those present were: Mr. W. A. McIntyre, Secretary; Mr. J. B. Somerset, Inspector, Winnipeg. The following city teachers:—Messrs. E. L. Byington, M.A., Principal of the Normal School; J. Fawcett, B.A., Principal of the High School; W. A. McIntyre, E. A. Garrott, J. D. Hunt, E. A. Blakely, J. Reid, J. C. Acheson, N. Hewitt, F. Shore, F. F. Kerr, the Misses Wright, McEwen, Eyres, McIlroy, Archibald Johnson, Mabee, Dickson, Garwood, Bella Hargrave and Martha Hargrave; the Misses Saunders and Flummerfelt, Normal School students; and the following teachers of Provincial Schools:—Misses A. E. Smalley, St. Andrew's; J. McGuire, West Kildonan; J. M. McGregor, North Springfield; D. McKinstry, Balmoral; Miss Burk, Rockwood;

Miss Barber, Dufferin; Mr. W. Eccles, Ossowo; Mr. F. A. Schultz, Millford; Mr. Alexander Acheson, St. James; Mr. A. H. Monkman, North High Bluff. The first paper was one by Mr. Byington, on "The Teacher Out of School," in which he was advised to cultivate gentlemanly deportment, associate with both pupils and parents, prepare carefully for his classes, and keep himself thoroughly abreast of the intellectual progress of the day. After a discussion, in which Messrs. Acheson, McIntyre, Garrott, Fawcett, Hewitt, Somerset, and the President took part, and the transaction of routine business, the President delivered his address. He adverted, at the outset, to his recent creation of a collegiate department in the Province in connection with public school work. One secondary school has been commenced in Winnipeg, and another was contemplated in Portage. In Brandon where, a year ago, there was no school at all, there are now from 250 to 300 scholars in attendance, and a collegiate institute is talked of. It had been considered expedient to establish also a normal department, in order that they might train their own teachers, and such a department is now in operation. He commended Messrs. Fawcett and Byington, the principals of these departments, to the association, and believed their appointments would be justified by their success. He paid a high tribute to the late Dr. Ryerson, and the system he founded in Ontario; but believed they would yet have an equally good system at less expense in Manitoba. A committee was formed to frame a scheme for the formation of local associations, to be worked in connection with the provincial association, Mr. Somerset being named the convener. A paper on Music by Mr. Hunt was illustrated by class recitals, consisting of calisthenic songs and sight reading of the tonic sol-fa notation, of which Mr. Hunt is a warm advocate. Remarks in its favor were subsequently made by Messrs. Hewitt and Somerset, and a vote of thanks was accorded to Mr. Hewitt and his class, on the motion of Mr. Byington. The first item on the second day's programme was a normal class exercise by Miss Inglis, who illustrated the phonic method of teaching reading. This led to an interesting discussion on the teaching of reading and spelling, in which Messrs. Fawcett, Garratt, Somerset, Byington, Hewitt, McIntyre, Blakeley, Eaton, Bamford, Reid, and the President took part. Mr. Garratt next read a paper on drawing, in which he recommended strongly the practice of designing instead of mere copying. This was followed by a paper from Mr. Somerset, on "The Necessity of Normal Instruction," in which, after speaking of the power of the teacher over the characters of his pupils, he dwelt upon the extent to which during the past few years new and improved methods had superseded old and clumsy ones. He referred to the extent to which normal facilities were supplied in New York and Ontario, as compared with the small number of teachers with a normal training, and accounted for the disparity by the shortsightedness of the people, who were unwilling to pay liberally enough for the services of good teachers. He hoped to see the day when every teacher, before getting a license, would be compelled to undergo a professional training. Discussions on the papers by Messrs. Garratt and Somerset then took place, after which Mr. T. A. Bernier, Superintendent of Roman Catholic schools, at the request of the President, briefly addressed the convention, and announced his intention to have a similar one organized for the mutual improvement of his own teachers. Mr. Lindsey, of the Winnipeg Business College, read a paper on "Penmanship," in the course of which he gave a sketch of the history of the art, and of the instruments used in writing, from the ancient reed to the modern pen. His analysis of script characters into their elements was illustrated by the use of the blackboard. He deprecated sticking too closely to stereotyped headlines, and advised teachers to restrain scholars from eccentricity and flourishing. After some time spent in discussing the programme of studies, it was adopted for rural schools, the President having acknowledged his obligations in the framing of it to Mr. Somerset and his predecessor in the city inspectorate. With Professor Bryce, of the Manitoba College, in the chair, votes of thanks were passed to the President, and to those who had prepared papers for the convention. A motion of appreciation of Mr. Eaton's little work on English grammar was also carried, after which the convention adjourned.

NOVA SCOTIA.

The Teachers' Association of District No. 5 (Counties of Hants and Kings) held its third annual meeting in Wolfville, on the 5th, 6th, and 7th of October. The first business of the association was the election of officers for the ensuing year, the following being chosen: A. J. Denton, Principal of the Kentville Academy, Vice-president: J. F. Godfrey, Principal of Hants County Academy, Secretary-Treasurer; and Mr. Pineo, Mr. Craig, Misses McKeen and Calhoun, Executive Committee. After some preliminary work Miss McKeen of Wolfville school gave an illustrated lesson on "Color and Form." This lesson clearly proved that the mind of the child can be made to grasp quite difficult points and retain them when presented in a proper way. Miss Blackadar followed with a paper well written and very practical: subject, the "Teachers' Stipend." This called forth considerable discussion, in which Dr. Allison, superintendent of education, Mr. Roscoe, inspector of district No. 5, Mr. Denton, and others took part. Through the kindness of the authorities of Acadia College the Academy Hall was opened to the association for its afternoon session. Accordingly quite a large number of teachers and others were present. At the second session of the association Mr. Scofield read the first paper on the subject of "Text-Books, their use and abuse." This was a paper of great interest and brought out an animated discussion. Dr. Hall of the normal school being present made a few remarks on the "Text-Books of History." Mr. Elliott then followed with a paper on the "Study of Geometry." He advanced some ideas concerning the study of that science, which, if followed out, would greatly increase the interest in it. His paper was spoken to by Mr. Coldwell, Professor of Science in Acadia college, and warmly endorsed by Dr. Higgins, Professor of Mathematics. The association adjourned for the purpose of visiting the museum and library of Acadia college kindly opened for inspection. At 8 p.m. a public educational meeting was held in the college hall. The president of the association was in the chair. Dr. Allison was the first speaker. He spoke of existing misconceptions concerning the work of the teacher, concerning the moral influence of our schools, concerning the effects of our present system of education. He contended that the public did not view the educational work in the same way nor test it by the same standards as they apply to ecclesiastical and political organisations. Dr. Sawyer, president of Acadia college, was the second speaker. He gave an encouraging address to the teachers, aiming to make them more contented and more earnest in the work in which they were engaged. He said the teacher was one of a vast army seeking to promote the moral, physical, and intellectual growth of the world. He proved clearly that the difference between the workman at his work and the professional man engaged at his profession depended on the fact, that the latter held a vastly more responsible position than the former, and this great responsibility gave dignity to the profession. He compared the teacher to the artist who labors energetically and untiringly to make himself master of certain principles, not for the principles' sake, but for what may be gained from their use. Dr. Higgins then followed with a short address, in which he compared the status of education of the present day with that of thirty-five years ago. He thought vast progress had been made and gave some very conclusive and amusing facts to substantiate his statement. If, he said, we do not all hold the same views with regard to the political course adopted by Sir Charles Tupper, we at least agree that by the introduction of the present school law he conferred an inestimable boon on Nova Scotia. He thought teachers should study more the character of their pupils and all must not be treated in the same way. He was pleased to hear (as he had heard that afternoon) teachers discussing how, and when, and where to present certain subjects to their pupils. It is only when a fact has the power of promoting mental growth that it is worth presenting, and this fact the teacher should constantly keep in mind. Dr. Hall of the normal school was the last speaker of the evening. After some remarks concerning the normal school the Dr. said the æsthetic side of education was too much neglected. The surroundings of school houses were not beautified or adorned as they should be, neither was sufficient care taken with the interior of those buildings in which the child is to be educated. Much education is obtained through the perceptive faculties, and as our great aim at the present day is more refinement among not only our men but our women, he contended that the surroundings of the school-house, the building itself—both inside and out—should be made attractive. He hoped ere long to see this matter more particularly attended to. Friday morning was occupied in listening to a very amusing paper by Mr. Bishop on the "Professional Relations of Teachers." Miss Parsons of the Wolfville school then read a carefully prepared paper on the "Method of Teaching Reading." Dr. Hall contended that reading was not as important a branch of education as many considered it. Mr. Parker of the Canning school followed with an address to the association, in which he strongly urged every teacher to devote more time to study, to attend some college, and by no means fail to spend a term at the normal school. Mr. Denton fol-

lowed with a paper on "Compulsory Education." This paper gave evidence of much thought on the part of its author. He urged upon every teacher the necessity of using every means to bring about compulsory attendance at school. He agreed in the main with Mr. Harrington's Bill. One or two points seemed to them objectionable, and he introduced to them the following resolution: "*Resolved*, That this association highly approves of compulsory attendance at school, and strongly urges upon the Government of Nova Scotia the great desirability and imperative need of an Act to secure the better and more regular attendance of pupils, and further resolved, that the present proposed Act is defective and will, in the opinion of this association, prove abortive through want of proper stringency and want of legislation to secure the regular attendance during the eighty days, and moreover it is the opinion of this association that the eighty days should be eighty consecutive days." The superintendent of education, while not disposed to combat the theoretical principles enunciated by Mr. Denton, reminded the association that no legislation could of itself cure the evil of irregular attendance at school. Earnest effort on the part of men of enlightened minds to create a higher educational sentiment in the country, attractive, scholarly, enthusiastic teachers can never be dispensed with as a means of securing the end sought. The afternoon session of Friday was occupied by Professor Coldwell, president of the Acadia college science club, who delivered an illustrated lecture on "Physics." This was a new feature at the association, but one highly appreciated. The last session of the association was devoted to an illustrated lecture, by Mr. A. J. Pineo, on the "Story of the Earth."

Mr. W. Mortimer McVicar, has resigned the principalship of the Truro public and model schools to take charge of the new Baptist academy at St. John, N.B. The vacancy at Truro has been filled by the selection of B. McKittrick, B. A. (Dalhousie, 1877). The appointment of Mr. McKittrick secures for Truro the services of an energetic and efficient principal. Under his management, aided by a sympathetic and progressive board of trustees, the county academy at Sydney has attained during the past few years a commanding position among the high schools of the Province.

The attendance at the Provincial normal school for the ensuing session promises to be unprecedentedly large.

W. D. Dimock, A. M., for several years principal of the model school, Truro, has received the appointment of Secretary to the Fishery Commission at Ottawa. Mr. D. has gifts specially fitting him for this important office.

Mr. Fred Rand has been selected by the board of school commissioners of the city of Halifax to fill the vacancy in the intermediate department of the Morris street school, caused by the resignation of I. F. Davidson, A.B. Mr. Harris F. Corydon succeeds Mr. C. D. Mackenzie in the corresponding department of the Dartmouth public schools.

The Provincial *Journal of Education* for October contains the names of the successful applicants for teachers' licenses at the annual examination in July. The returns show that six (6) candidates received license of the Academic Class (Provincial Grade A); fifty-one (51) licenses of the First Class (Provincial Grade B); one hundred and fifty-six (156) licenses of the Second Class (Provincial Grade C); one hundred and ninety-five (195) licenses of the Third Class (Provincial Grade D).

J. W. Spencer, B.Sc., M.A., Ph.D., F.G.S,, has resigned the professorship of Chemistry, Geology and Mining in King's college, Windsor, to accept an appointment in the university of Michigan. The Governors of King's college have secured for the chair thus vacated, the services of Prof. Geo. F. Kennedy, late Professor of Natural Sciences at Acadia college, Wolfville.

The board of school commissioners of the city of Halifax, and the school trustees of the town of Dartmouth, have unitedly effected an arrangement. whereby all the teachers of the city and town are to receive systematic instruction in industrial drawing as preliminary to the introduction of that branch of education into all their public schools. The lessons are given semi-weekly by Miss Smith, art instructor in the normal school.

The well known Yarmouth seminary has been, with the consent and good wishes of its governing board, amalgamated with the public school system of the town of Yarmouth. This movement lays beyond question the foundation of a flourishing and vigorous academy. The action of the proprietors of the seminary has been in the highest degree patriotic and unselfish.

NEW BRUNSWICK.

From the *Educational Circular*, issued half-yearly by the Chief Superintendent of New Brunswick, we condense the following account of the Educational institute for that Province, held at Fredericton in July last:—

The institute was presided over by Dr. Rand, the Superintendent. After routine the first item was a paper on "Physical Education, its place and scope in Public School Work," by H. C. Creed, M.A., instructor in the Provincial normal school. The paper is printed entire in the *Circular*, and is a thoughtful and suggestive dissertation on the subject. A paper from Mr. John Montgomery, principal of the Albert school, Carleton, St. John, on "How to Ensure Success in Writing" was followed by a discussion in which Messrs. Dole, Parkin, Montgomery, Chisholm, Creed, Morrison, Lawson, Burnett, Belyea, Crocket, and Meagher, took part. A paper on "Organization in Ungraded Schools" was read by Eldon Mullin, B.A., inspector of schools for the seventh district and it also was followed by a discussion of the subject. W. Crocket, M.A., principal of the normal school then read a paper on methods of teaching reading to beginners in which he described the alphabetic, phonic, and look-and-say methods, preferring the last named to the others. His preference was more particularly for the sentence as distinguished from the word method. A very interesting discussion followed, the majority agreeing with Principal Crocket in his advocacy of the look-and-say method though some would begin with words rather than with sentences. One speaker objected to that method on the ground that it turned out bad spellers; another had some regard for the old alphabetic method and thought it might be combined with more modern systems. Mr. Creed thought the look-and-say method, which is generally followed in New Brunswick showed better results than the phonic method in vogue in Nova Scotia, but he preferred beginning with words rather than sentences. Dr. Rand thought the sentence method was the word method rationalized. Addresses on the teaching of temperance in the schools were delivered by Mrs. M. H. Hunt of Massachusetts, by Mr. Lawson, Dr. Rand, and others, Mrs. Hunt receiving a hearty vote of thanks for her valuable suggestions. A lucid paper on "Minerals, Plant Life, and Animal Life" was read by Mr. Crocket, and at the request of members of the institute Dr. Rand promised to have it put in the hands of teachers as soon as possible. Before the adjournment a resolution was passed strongly favoring the preparation of an educational exhibit in connection with the Dominion Exhibition to be held in St. John in 1883. The usual votes of thanks brought the proceedings of a very successful institute to a close.

WHAT'S IN A SLEEPER.—A sleeper is one who sleeps. A sleeper is that on which the sleeper sleeps. A sleeper is that on which the sleeper which carries the sleeper while he sleeps runs. Therefore while the sleeper sleeps in the sleeper, the sleeper carries the sleeper over the sleeper under the sleeper, until the sleeper which carries the sleeper jumps off the sleeper, and wakes the sleeper in the sleeper by striking the sleeper under the sleeper, and there is no sleeper in the sleeper on the sleeper.—*Oswego Palladium.*

WEAR AND RUST.

"When I was a boy," said an old physician, "I remember that my father brought home two chains just alike, to use on the farm. It was not long before one was lost, and though we hunted high and low for it, we never could find it. The conclusion probably was that it was stolen, but I don't recollect whether we located the theft on any one in particular. After I had finished my medical studies, I went home one summer for a visit, and it happened that year father moved a great stone pile that had lain on the farm all my days. There at the bottom lay that old chain, which had probably been thrown on the heap and slipped in among the stones. We took it out and tried to use it, but there was no strength in the rust-eaten links; they broke and fell apart at the least strain. The other chain was in use still. The links were worn some, but bright and strong still, and ready for a good deal of useful service.

"I have often thought of that old rust-eaten chain since then, and it reminds me of lazy folks who just rust out their lives. I find in my practice that they are the hardest to cure when they are sick, and that every little thing breaks them down. Good, earnest work, in moderation, is one of the best health-givers I know of. If people of health would practise it, we doctors should have to go out in the corn fields to work for a living."—*Sel.*

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

SOUTH HASTINGS.—Held in central school Belleville, 12th and 13th ult. The president, inspector J. Johnston, ably occupied the chair. The attendance was very large, and at times during the sessions several distinguished visitors from the city and neighborhood were present, who were cordially welcomed. Among them were Revs. D. Mitchell, Shorey, Burns and Dr. Jaques; also Messrs. T. Mills, chairman, board of Education, W. Johnston, Carmichael, T. Holden, school trustees, Belleville; Mr. Massey, school trustee, Sidney, Mr. Matheson, principal of the deaf and dumb institute, with Professo s Coleman and Green from the same establishment. The proceedings were characterized throughout by the utmost attention and order, as well by the interest taken in the discussions—a feature which elicited many extremely instructive hints. The exercises were enlivened by organ solos performed by Prof. Stanistreet; and songs and recitations by the members. After opening, the report of Mr. O. S. Hicks, delegate to provincial association was received, and Mr. G. W. Sine was appointed delegate to next meeting. Prof. J. T. Bell gave a brief address on the importance of teachers' conventions as a means of mutual improvement. Mr. W. J. McCammon illustrated, with a class from Miss Simpson's division, the modern methods of teaching reading, which he treated in a masterly manner. Mr. Burke followed with a few well-timed remarks. In the afternoon Mr. J. L. Robertson of the CANADA SCHOOL JOURNAL gave a brief address after which Mr. O. S. Hicks, Sidney, took up the subject of Map Geography and illustrated his method of teaching it. He deprecated the plan of filling children's memories with desultory names easily forgotten, and urged such drilling on the map that the towns and physical features thereon would be impressed on the mind through the eye. As a result, whenever a continent or country was named the map of it would present itself to the mental vision and a better knowledge of locality was thus secured. He advocated map drawing and the use of blank and outline maps. This very profitable exercise was well discussed by Messrs. Rogers, Black, H. E. Kennedy, M.A., Robertson, Burke, and others. Mr. J. Johnston I. P. S. explained the new programme for public schools giving at the same time some excellent practical hints for its successful use. Mr. G. W. Sine introduced the subject of monthly examinations and reports to parents, which was well discussed and resulted in a resolution proposed by Mr. Burke, seconded by Mr. Hicks and unanimously carried, to the effect that monthly written examinations be adopted in the district as helping systematic and uniform promotions in the public schools. *Second Day.* Mr. Wilson showed some simple plans of clearing away difficulties in arithmetic experienced by junior pupils. His plans were combated by Miss Urquhart and Messrs. Narraway and Black. Mr. H. E. Kennedy, M.A. proposed that the next convention be held in Trenton, seconded by Mr. Rogers. Mr. Sims, seconded by Mr. Sine, moved an amendment in favor of Belleville. The amendment was carried by a small majority. Mr. Johnston I. P. S. brought under the notice of the members some mistakes in teaching and discipline he had observed in the course of his periodical visits to the schools. By his kind advice and critical remarks it is evident many weak points will be built up to the benefit of both teacher and pupil. This admirable feature of wholesome, practical instruction is worthy of imitation in other conventions as it is calculated to promote the most beneficial results in school work. In the afternoon Dr. Wright, H. M. Belleville high school, gave an address on "Pupils' Rights", in which he represented the pupil as a miniature citizen of a regularly establishe l muncipality where he should learn to govern himself and others with justice and propriety. The teacher is his ruler but not his taskmaster, and the government should be exercised in a manner tending to advance the interests of both. The pupil has a right to the teacher's sympathy and also a right to take part in the teacher's responsibilities. The address was much appreciated and elicited warm applause. The committee on New Readers presented their report highly commending the series published by Messrs. W. J. Gage & Co., which was adopted; and afterwards Mr. Kennedy moved a resolution in favor of the authorization of one series of readers only, which was seconded by Mr. Narraway and carried unanimously. Dr. Wri.ht then took up "Junior Composition." He said that young pupils could be got to write about many familiar things, and relate simple narratives in their own words, but if this operation were dignified with the name of "Composi ion" they would shrink from attempting it. Failures were chiefly caused by aiming at beautiful language. Mr. Carmichael, school trustee, treated the members to a splendid recital of a poem named "Magdala," which was well received. Thomas Wills Esq, chairman of the Belleville board of education was moved to the chair and Mr. Johnston I. P. S. gave his ideas on uniform promotions with a view to the adoption of the system. On the motion of Mr. Burke, seconded by Mr. Rogers the following committee was appointed to formulate regulations and to arrange for the system being put into operation:—Messrs. Burke, McCammon, Hicks, Sine, Rogers, Emerson and the inspector. A recitation in gesture expressive of the story of "The minister and the hornets", and another of "Christ stilling the tempest" were given by Prof. Green, deaf mute, of the Belleville deaf and dumb institute, in each of which the remarkable power of expression that gesture is capable of was forcibly shown. Prof. Coleman's duties as interpeter were scarcely needed. Votes of thanks were accorded to the visitors, who acknowledged the same in brief addresses; also to those who took part in the singing and recitations, namely; Misses A. Harrold, White, Carr, Rogers, Bollard, and Robertson, and Messrs. Millburn, Burke, Rogers and Smith.

EAST VICTORIA.—This association held its last half-yearly meeting at Lindsay on Friday and Saturday, the 13th and 14th October, the president, Mr. J. H. Knight, in the chair. After routine proceedings the president gave a practical address, and from time to time during the proceedings he availed himself of opportunities to enforce advice suggested by his own experience as teacher and inspector. At great expenditure of labor and ingenuity he had prepared a series of maps to illustrate the railway system of Ontario, and in a brief prelection he went over that system in detail, giving a clear exposition of traffic routes and geographical relations. Mr. Elliott, of Omemee, gave the convention his idea of the best method of teaching history. Mr. S. Armour read a thoughtful paper on "School Government" which elicited a brief but interesting discussion. The latter turned chiefly on the expediency of resorting to corporal punishment, and availing himself of what was said by members of the convention the Rev. Dr. Vincent of Chautauqua fame, who was at this juncture introduced to the meeting, delivered a stirring address on the influence of the teacher as a moulder of character. Part of Saturday was taken up with a discussion of spelling reform which was advocated in a brief address by Mr. Houston M.A. of Toronto. The question of school readers was discussed at some length and a resolution was unanimously adopted approving of the "Canadian Readers" published by W. J. Gage & Co. as greatly superior to those now in use and recommending their introduction. As the result of a discussion about the best method of expending the surplus funds of the association for the benefit of the members, it was unanimously resolved to take the CANADA SCHOOL JOURNAL, one copy for each member. The evening lecture expected from T. Kirkland M.A. was dispensed with on account of the public lecture by the Rev. Dr. Vincent the same evening.

DURHAM.—The half-yearly meeting of the Durham Teachers' Association was held in Bowmanville on Friday and Saturday, the 13th and 14th of October. The proceedings were opened by the President, Mr. D. J. Goggin, Principal of Port Hope Public Schools, and, after the usual preliminaries, the subject of Promotion Examinations was introduced by Inspector Tilley. He told what he had done toward arranging the next promotion; he expressed his entire satisfaction with the result of the past examination, and asked for hints that would be useful in the future. He further suggested the advisability of holding township associations—in connection with the first promotion examination, and so having but one county convention in the year—this to last say three days. The subject was discussed by Messrs. Barber, Ellis, Keith, Reynolds, Symons, Tamblyn and the President, and finally left over till Saturday for further consideration. Mr. G. W. Ross, M. P., Model School Inspector, then gave an address on "Mistakes in Reading." He began by asking those present to suggest difficulties in reading that they had met with in their own schools. Some eight difficulties were at once given, and he proceeded to deal with these, showing how they might be removed The first difficulty considered was—Monotony; the remedies proposed were imitation, phrase reading, simultaneous reading, and patience. Too low and too loud reading were next discussed and the remedy given for these, as for too fast and too slow reading, was chiefly simultaneous reading. Hesitation, stammering, indistinctness, and faulty enunciation were next taken up, their causes mentioned and remedies proposed. Other defects were noticed in the same way and an address, replete with interesting information, was brought to a close by a model lesson to a class in the first book, to impress the fact that the basis of all good teaching lies in an intelligent appreciation of the meaning of what is read and an honest effort to express it in pure sympathetic tones. The next subject taken up was "The best Method of Teaching Language," by W. W. Tamblyn, M.A., Head Master of Bowmanville High School. He enunciated two principles as governing all teaching of languages; first, repetition of correct speech; second, reproduction. The teaching of grammar at an early stage, indeed the teaching of it at all before the use of it is felt, was strongly condemned. The reception of such answers in oral work as are full and correct, was insisted on, and the interchange of vowel sounds and word building was adverted to as two principles, the knowledge of which would materially assist the teaching of language. Illustrations from the French and Latin were given to show the value of these principles. In closing he urged strongly the value of mixing in society, where good speech is the rule, and to read good books and familiarize. Messrs. Tilley, Keith. Goggin, Ellis and Grigg followed in a few remarks on the subjects of Reading the Language, and favored generally teaching by use of objects where

practicable. Messrs. Keith and Goggin were not so much in favor of establishing a "museum" in school, unless the trustees would foot the bill. The former favors the "fancy" or imaginative system; the remarks of the latter bore only upon the theory he did not favor. Inspector Tilley followed, dwelling on vocal gymnastics, distinctness of articulation, etc. After this an animated discussion, *pro* and *con*, on Object Teaching followed. Dr. McLaughlin, who was present, joined in the discussion, expressing his warm sympathy with the objects of the association and his pleasure at the intelligent way in which the subject had been discussed. Mr. Van Mercer, of the Philadelphia School of Oratory, addressed the meeting on the subject of Elocution; after which Mr. Bonbright gave illustrations of the various tones of the voice, reading short selections. Mr. Goggin read an excellent paper on "The Country B y, his Value and his Needs." That the country boy is invaluable was naturally inferred as the reader and his hearers were representatives of the country. The needs of the country boy were rehearsed, and those in connection with the study of grammar, geography and arithmetic were considerably discussed by Messrs. Gilfillan, Barber, Tamblyn, Grigg and Tilley. Mr. Ross then gave an admirable address on "The Teacher's Decalogue," which subject was changed into "The Teacher's Pentalogue." The commandments were as follows: (1.) Thou shalt not have any other profession. (2.) Thou shalt not make unto thyself any counterfeit of thy profession. (3.) Thou shalt not speak lightly of thy profession. (4.) Remember your holidays to keep them sacred. (5.) Honor thy trustees, *that thy days may be long in the land.* The Association passed a resolution in sympathy with the bereaved Mrs. S. P. Davis, and in expression of their deep regret of Mrs. Davis' departure from their midst. The question drawer was then taken up by Messrs. Ross, Tilley, and Barber, and a couple of hours were very profitably spent. Resolved, That the Association send to the Minister of Education a resolution expressive of disapproval of a certain clause in the Act pertaining to the superannuation of teachers, and the expression of its desire for a remedy. After a vote of thanks to Mr. Ross, and his election as an honorary member of the Association, the meeting adjourned.

West Bruce.—On the 12th and 13th of October the West Bruce teachers held their half-yearly meeting in Kincardine. Mr. D. F. Ritchie was elected president, in the room of G. W. Bowman, who has been appointed to a collegiate position in the United States. After a discussion of the question whether it was most profitable for a teacher to attend convention or visit other schools, Mr. A. H. Smith performed a number of experiments illustrating combustion. Dr. McLellan then took up the "A B C of Arithmetic." At a later period in the session he discussed the subject of "Sympathy," and also that of "Reading in Schools," all of which he handled in his usual effective manner. Mr. J. C. Pomeroy read an essay on "The Origin of Language," Mr. Rennie one on "The Times," and Miss Jessie Thompson one on "Have an Aim." Illustrated prelections were given by Mr. H. H. McKague on map and geometrical drawing, and by Mr. Powell on "English Literature." On Thursday evening Dr. McLellan delivered, in the town hall his attractive lecture on "Ten Years of Educational Progress," the audience being large and appreciative.

East Grey.—The teachers of this district met in convention, on the 12th. and 13th. of October. The election of officers, which was the first item of business, resulted in the choice of the following: president, A. Grier, P. S. inspector: V. president. G. Lindsay; sec. J. Farewell; treasurer, R. Hamilton. The subject of Promotion Examinations was discussed, and a committee composed of Messrs. Whyte, Hodgson and McKinnon appointed to confer with the N. and S. Associations on the matter. The subject of Mensuration was introduced by the secretary and very ably discussed by Messrs. McKinnon, Tait and Hodgson. Mr. Tait then gave a very excellent paper on the Kindergarten system of Education which caused much instructive and interesting criticism. The Rev. Mr. Washington then gave an address on "Aimless study," for which he received a cordial vote of thanks. A musical and literary entertainment was given on Thursday evening to a good audience. The subject of "teacher's certificates" was introduced by Mr. McKinnon, and after the matter had been reported on by a committee it was resolved that only one professional examination, instead of three, should be required. After a discussion of the question of "Corporal Punishment" Mr Hodgson gave a statement of his method of teaching mental arithmetic, which led to a good discussion. Mr Tait discussed recent changes in grammar, and Mr. Grier, promotion examinations. Mr. Henderson explained his method of teaching music, and Mr. Whyte introduced the subject of object lessons. "Proportion *vs.* Unitary Method" was the subject of an address by Mr. Tait, and the topic was afterwards discussed at some length. The next meeting will be held at Meaford.

Stormont.—The eleventh half-yearly meeting of the teachers' association for the county of Stormont was held in the high school building, Cornwall, on Thursday and Friday the 5th & 6th of October. The programme was very fully and ably disposed of. A larger number than usual of teachers was in attendance and the meeting throughout one of most profitable that has been held. The president in his opening address called attention to the recent changes made in the school law. He also referred to the proposed alterations in the management of the superannuation fund, furnished some very interesting statistics regarding the government aid afforded, the cause of education in the different countries of the world, and expressed the opinion that teachers' engagements with trustees should be permanent, subject only to dismissal on three months' notice. The secretary took up the subject of arithmetical fractions, explaining the principles upon which their correct treatment depends, and illustrating by examples the methods of proof for the various rules given. Mr. Casselman in a very pleasing manner showed how the useful but much neglected art of drawing might be successfully taught to the average school pupil. Mr. Harrington disposed of commerical arithmetic, percentage, commission, discount banking and exchange, they were all elucidated by means of problems that plainly presented the principles involved in the processes pur ued. Mr. McGregor favored his fellow-teachers with an exposition of what he considered the best and easiest as well as the most beneficial, system of acquiring a familiarity with the events, their causes and consequences, of which history treats. Mr. Milden gave an interpretation of the general principals of education, abounding in practical suggestions and important directions as to how those principles should be applied to the work devolving upon the teacher. Mr. Raney read an exceedingly wise production on the subject of "Ignorance" which was so much appreciated that its publication was requested. Mr. McCallum gave a lecture on natural science, forcibly impressing upon the minds of the teachers present the desirability of making it a subject of instruction in their schools, and endorsing the prophecy that as a study, nat. science must eventually supersede classical literature, being of greater practical value. Mr. Smith read an elaborate essay on the life of Burke, reflecting much credit on the author of the "Reflections," and no less upon the writer of the life-sketch presented. On the evening of the first day of meeting the secretary delivered a lecture in Kirkpatrick's Hall on "The achievements of the age." It was decided to hold the next meeting at Newington on the first Thursday and Friday in February 1883. Votes of thanks were tendered to all those who had contributed to the success of the meeting and the association adjourned.

CÆSAR'S DEATH.

The most dramatic description we have ever read of the closing scene in Cæsar's life is the following, by Froude: "The Ides of March arrived; omens of dire import had cast their shadows over the household: Cæsar's wife was disturbed by a ghastly dream of the previous night, and at her request, Cæsar, who, contrary to his usual habit, had given way to depression, decided that he would not attend the Senate that day. The house was full: the conspirators in their places with their daggers ready. It was announced that Cæsar was not coming. Delay might be fatal, and his familiar friend was employed to betray him. Decimus Brutus, whom he could not distrust, went to entreat his attendance. It was now eleven in the forenoon, and Cæsar shook off his uneasiness and rose to go. As he crossed the hall, his statue fell, and was shivered on the stones. Some servant who had heard whispers wished to warn him: but in vain. Antony, who was in attendance, was detained, as had been arranged, by Trebonius. Cæsar entered and took his seat. His presence awed men in spite of themselves, and the conspirators had determined to act at once, lest they should lose courage to act at all. He was familiar and easy of access; they gathered around him; he knew them all. There was not one from whom he had not a right to expect some sort of gratitude, and the movement suggested no suspicion. One had a story to tell him, another some favour to ask. Tullius Cimber, whom he had just made Governor of Bithynia, then came close to him with some request which he was unwilling to grant. Cimber caught his gown, as if in entreaty, and dragged it from his shoulders. Cassius, who was standing behind him, stabbed him in the throat. He started up with a cry, and caught Cassius' arm; another poniard entered his breast, giving him a mortal wound. He looked around, and seeing not one friendly face, but only a ring of daggers pointing at him, he drew his gown over his head, gathered the folds about him that he might fall decently, and sank down without uttering another word. Cicero was present; the feelings with which he watched the scene are unrecorded, but may easily be imagined. Waving his dagger, dripping with Cæsar's blood, Brutus shouted to Cicero by name, congratulating him that liberty was restored. The Senate rose with shrieks and confusion, and rushed into the forum. The crowd outside caught the words that Cæsar was dead, and scattered to their homes. Antony, guessing that those who had killed Cæsar would not spare himself, hurried on into concealment. The murderers, some of them bleeding from wounds which they had given one another in their eagerness, followed, crying that the tyrant was dead, and that Rome was free; and the body of the great Cæsar was left alone in the house where a few weeks before Cicero told him that he was so necessary to his country that every Senator would die before harm should reach him?"

REVIEWS.

A Grammar of the Modern Spanish Language, as now written and spoken in the capital of Spain. By William J. Knaggs, Professor in Yale College. *Boston: Ginn, Heath & Co.*, 1882. There is certainly room for such a grammar as this professes to be. Although Spanish has been practically, but we hope only temporarily, banished from our Provincial University, still a knowledge of the language is exceedingly useful, and, that too, not only to those whose sole object is to acquire a speaking knowledge for practical purposes, but also by those who study it for its literature, or as an important member of the Romance Group of Languages. Very much less has been done in the way of presenting the language of Castile to the student in a scholarly form, than is the case with its sisters, French and Italian. Professsor Knagg's Grammar will render, we believe, the study of the language rapid and pleasant, at least to one who has studied other modern languages, but we cannot help regretting that the author has not given the derivation of, at least, such words as are found on every page of a Spanish book. A few derivations are, indeed, given, but no grammar, we think, is quite perfect which does not recognize the wants of the student who wishes to observe the growth as well as the actual forms of the language. A second edition, however, may see this want supplied, especially as a very few pages would have to be added. From our examination of the book we may congratulate learners on their having, through this grammar, a pleasanter path to pursue than we had through a weary, interminable, planless "Ollendorff."

THE ODYSSEY OF HOMER, done into English prose by S. H. BUTCHER, M.A., of University College, Oxford; and A. LANG, M.A., of Merton College, Oxford. *New York, Macmillan & Co.: Toronto, Wil ing & Wil liamson.* This work is specially interesting at present to the student of Greek, coming into our hands, as it does, almost immediately after the keen contest in Edinburgh for the occupancy of the chair recently vacated by Professor Blackie. The successful applicant was Mr. Butcher, one of the translators of the present English edition of the Odyssey. This work carries on its surface the marks of high scholarship; not only do the translators show a due appreciation of the relative value of the Greek and English idiom, but a point and importance are given to the English equivalent of the numerous Homeric particles, which we think must deservedly raise the work in the estimation of every admirer of this great ancient epic. We have seen translations of the Odyssey that aim at a more brilliant and ornate style than the present, but we are not acquainted with any that outshine this in the terseness of its English, in the neatness and pith of its diction. In translations of Homer this seems to us a new departure; the language is essentially English, and if it be "the choice of a somewhat antiquated prose," as the editors intimate in the preface, we venture to say that it is a style that will commend itself not only to Homeric scholars, but also to the great majority of students of English. We hail with much satisfaction a translation of the Odyssey done into English as we see it preserved to us in the Bible or Shakespeare. On this point we take the following from the prefatory notice:

"Homer has no ideas that cannot be expressed in words that are 'old and plain'; and to words that are old and plain, and, as a rule, to such terms as, being used by the translators of the Bible, are still not unfamiliar, we have tried to restrict ourselves. It may be objected, that the employment of language which does not come spontaneously to the lips, is an affectation out of place in a version of the Odyssey. To this we may answer that the Greek epic dialect, like the English of our Bible, was a thing of slow growth and composite nature; that it was never a spoken language, nor, except for certain poetical purposes, a written language. Thus the Biblical English seems as nearly analagous to the epic Greek as anything that our tongue has to offer."

The brief notes that accompany the work are chiefly of a philological and archæological character, and are "meant to elucidate the life of Homer's men." They embody the results of the most recent investigation, presented in a very scholarly manner, but we should have preferred to see them scattered through the work as "foot notes," rather than collected at the end as they are. We can only regret that the annotations are not more copious and numerous; but the authors inform us that "some day they hope to write at length on Homeric syntax and Homeric forms of words, as well as on the heroic society of the poet's age." An excellent article by way of introduction is given on the composition and plot of the Odyssey, and the events of each day of the six weeks occupied by its action are given in the order of their occurrence, and form a neat and clear synopsis of the whole. In addition to this each book is prefaced by the argument taken, with slight alterations, from the translation of Hobbes.

MAGAZINES.

The ATLANTIC MONTHLY for November has been received. The plots of the two serial stories, "Two on a Tower" and "The House of a Merchant Prince," are thickening and the crises approaching. "Rube Jones" is a capital short story. George S. Wilson, a lieutenant in the American army, in an interesting article gives his views as to how the Indians are to be civilized. Charles Dudley Wamer contributes "A Ride in Spain." There are, besides, an additional instalment of "Studies in the South," a good notice of Daniel Macmillan, the publisher, and a number of other articles on various subjects. The number fully maintains the reputation of the magazine for the literary excellence and interest of the *menu* it provides.

The most interesting articles in the November number of the NORTH AMERICAN REVIEW are one on "English Views of Free Trade" by John Welsh, and on "The Pretensions of Journalism" by the Rev. George T. Rider. Mr. Welsh was formely United States minister to England and while a resident there he made himself acquainted with the speculative and political opinions of the various English schools of thought on the matter relating to trade. In this paper he argues strongly in favor of maintaining the United States protective system, but he bases his arguments on national exclusiveness just as other protectionists do. In his view everything sent out of the country is a draw upon it, and it is better to be self-contained, consuming at home all that is produced at home, than to encourage the growth of international trade. Whether a system erected on such a basis can long stand the able assaults of teachers like Prof. Sumner remains to be seen. Mr. Rider gives full credit to modern journalism for enterprise and ability, but criticises for its presumption. The New York *Nation* invented some time ago the phrase "trial by newspaper" to describe the American journalistic fashion of subjecting all kinds of disputes to their own analysis and verdict, and this phrase sums up in a condensed form one of Mr. Rider's criticisms. He is, as might be expected, particularly severe on Sunday papers, to the malign influence of which he attributes the diminished power over the people.

CENTURY for November is the first number of a new volume and it is a splendid beginning. One of the most striking articles in it is a sketch of the novelist, Henry James, junior, by his brother novelist W. D. Howells, which is all the more valuable from a literary point of view because it gives incidentally a partial glimpse of the progress made in novel writing as an art. The profusely illustrated articles are on "Venice," 'A new Profession for Women," "The Beginning of a Nation," and "Sculptures of the Great Pergamon Altar." It is needless to say that in these both letter-press and engravings are fully up to the high *Century* standard.

ST. NICHOLAS for November is also a first number and a good one. It contains the opening chapters of what promises to be one good serial, "The Story of Vitean" by Frank R. Stockton, and another' "The Tinkham Brothers Tide-Mill," by J.T. Trowbridge. These admirable letters of young people's stories need no words of commendation from us. What comes from them may be taken on trust. Amongst the sketches (illustrated) are "A Boy in the White House," who was the son of Abraham Lincoln, and "Torpedoes," in which the terrific power of these machines is graphically described. There are besides these a multitude of good things in prose, verse, and picture, too numerous to mention.

HARPERS' YOUNG PEOPLE, which is a weekly and not a monthly visitor, has during October pursued the even tenor of its pleasant way. "The Cruise of the Carrol Club" is a most entertaining sketch which manages to break off in each weekly instalment at the most interesting point. The article on "Piano-Playing in the Time of Mozart and Beethoven," is accompanied by a good portrait of the latter. "Some Hints on Dog-Teaching" will capture the boys.

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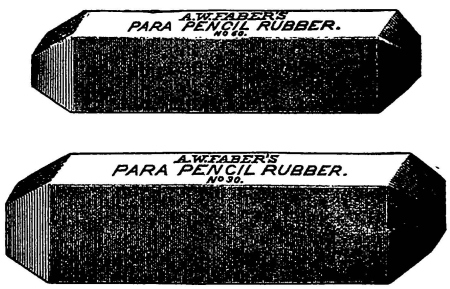

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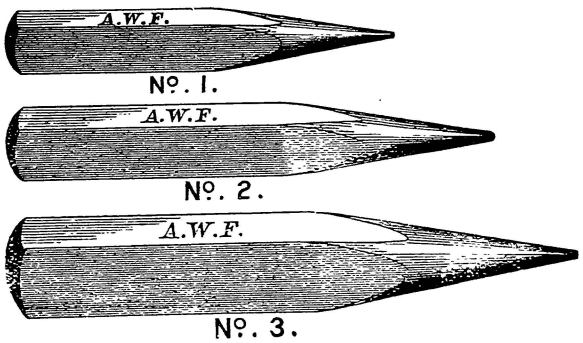

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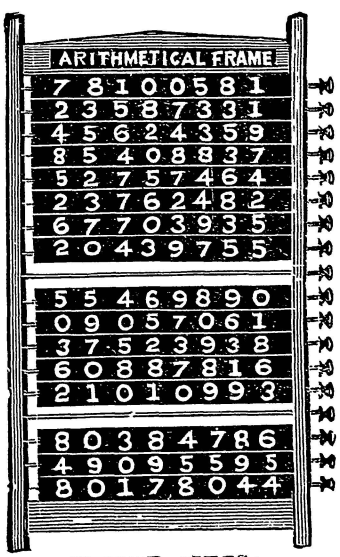

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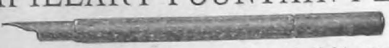

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The Canada School Journal.

VOL. VII. TORONTO, DECEMBER, 1882. No. 66.

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CANADA SCHOOL JOURNAL HAS RECEIVED

An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course, unable to make any distinction in a list containing names from all parts of the United States and Canada.

THE BIBLE AND RELIGIOUS INSTRUCTION IN SCHOOLS.

We published last month the resolutions on this vexed question adopted at a conference of delegates from the several Protestant churches and submitted by a large and influential deputation to the Premier of Ontario. These resolutions ask: (1) That scripture reading and prayer shall be made obligatory for devotional purposes in all public schools, with a reservation to each parent of the right to withdraw his children from such exercises; and (2) that, either by re-adopting the well-known series of lessons in the old Irish National Readers, or by adopting some other suitable series, provision shall be made for "scriptural and moral instruction" in the public schools. The resolutions were supported by brief addresses from prominent members of the deputation, which was undoubtedly a representative one, and Mr. Mowat gave a reply, non-committal, as a matter of course, but valuable on account of his clear exposition of the present state of the law.

We do not propose, at this stage of what promises to be a long and acrimonious discussion, to prejudge the question, or pretend that we have found out the best possible solution of the problem. Our purpose is rather to assist in securing that solution by clearing away some of the confusion in which the discussion has been involved, and bringing the latter back to the lines in which it must be conducted, if it is ever to lead to any satisfactory result.

It must be clearly borne in mind, in the first place, that the real dispute in connection with this question is not between religion and irreligion, between morality and immorality, between Christianity and agnosticism, between those who honor the Bible as an inspired Scripture, and those who regard it as of only literary and historical value. A very great majority of those who take an interest in the matter are quite agreed about certain fundamental principles. They all want moral instruction to be a regular and systematic part of the teacher's duty, and in this they are at one with agnostics on the one hand and Roman Catholics on the other. No one, whatever his speculative opinions on religious questions may be, wants his children to grow up without learning the meaning of the terms "duty," "right," "wrong," and others that are to be found in the vocabulary of morals. Every man, however careless or even criminal a life he may himself have led, would like to see his children grow up to be useful and respectable members of society, and would like to have them trained at school with that end in view. It would be just as well then if the controversy were narrowed to more reasonable dimensions at the outset, by eliminating all the points on which all the parties to it are thoroughly agreed.

In the second place, it is necessary to bear in mind that, while all are agreed as to the necessity of moral teaching in schools, there is much and legitimate diversity of opinion as to the best means of carrying it on. Some believe in using the Scriptures as a class-book of morals, and will be content with nothing else; some are willing to allow them to be used for devotional purposes, but not as a class-book; some want them excluded altogether from the schools; and, lastly, of those who are pleased to see the scriptures used in either one way or the other, some want their use to be made compulsory, while others prefer to leave the matter to the people of each school constituency. It is possible, we believe, to find amongst all these contentions what is called a *modus vivendi*, if we exclude those who, as avowed agnostics, have a positive dislike to the Scriptures on account of the supernatural element which permeates their contents. But even they do not maintain that there is anything objectionable in the purely ethical portions of the sacred text, and very few of them would find any fault even with the New Testament accounts of the miracles of Christ, who is constantly represented as working miracles not to display his power, but to relieve the sufferings of those with whom he came in contact. "He went about doing good;" and the life story of one whose constant occupation can in these words be correctly described offers little room for objection from any possible point of view.

It may safely be asserted that a more general recognition of the sacred scriptures in the public schools would be in itself desirable, and would be pleasing to the great majority, if not to the whole, of the community, independently of religious differences. How can this be most effectually and speedily brought about? Some say by a change in the law making the use of the Bible in schools compulsory, except in sections where the majority are opposed to its use. There are several grave objections to such an enactment. In the first place, it would have to be made penal, or it would lead to no better result than a recommendation, while, if left a dead letter, it would tend to bring law into contempt. Then it is doubtful whether the prescribed penalty could or would be exacted.

The loss of the legislative grant to sections, because teachers neglected this particular duty, would raise such a storm as would inevitably cause a reaction and leave matters in a worse state than at present. If the Department find it difficult to *prevent* the use of unauthorized text books, they would find it a hopeless task to *compel* the use of the Bible in schools. Then it is always a matter of doubtful expediency to change an old law or system which is itself the result of compromise amongst a variety of views. For thirty years the present regulations have been in force, and, under them, the use of the Bible in schools has become very general; is it worth while to risk a change in the principle of the law to secure the recognition of the Bible in one-sixth of the schools? Since the law recognizes all clergymen of all denominations as official school visitors, it puts them in a position to wield collectively a powerful influence in favor of its still more general introduction. It may be that this could be facilitated if the practice adopted in England were followed here, namely, of preparing a series of selected Scripture lessons, which could be kept clear of burning ecclesiastical dogmas, and also of those passages which, on grounds of good taste, are quite unsuited for class reading.

One thing should be clearly borne in mind in this matter; that is, that the voluntary, or local option system, has not been in any sense a failure. The *recommendation* of the regulations has been for years very generally observed, though no systematic effort has been made to secure its universal observance; and there has been a general improvement in the moral tone of the public schools. Anyone who knows anything about the state of these institutions a generation ago, will endorse this assertion. Then drunken, swearing schoolmasters were far from uncommon; now they are scarcely to be found. Then the pupils naturally fell into the same bad habits; now the latter are everywhere reprobated as violations of both good taste and good morals. It may be that a still greater improvement would follow the more general use of the Scriptures in school; we believe it would, but great care must be taken not to attempt anything like making people moral by Act of Parliament. The question is full of difficulties, and can best be settled by the exercise of mutual forbearance and cooperative efforts to make the most of the privileges and sanctions contained in the school law.

FATHER STAFFORD.

It would be difficult to name any one in this Province who ever acquired, in an equally legitimate way, a higher reputation as an educationist than the late lamented Father Stafford of Lindsay. The facts of his biography are given in another part of this number, but no mere sketch could do justice to his principles, methods, and efforts for the moral, intellectual and physical improvement of the common people. Fortunately for himself and the great work to which, with all the energy of a vigorous nature, he devoted himself, he was gifted with the most tolerant of dispositions. In his eyes every man's religious opinions were worthy of respect, and, as he invariably acted on this principle, he was popular with all creeds and classes.

Father Stafford's idea of education was as correc as his aims and methods were practical. He was an accomplished scholar and a well read man, but this did not prevent him from taking up, in the most common sense way, and carrying out with persistent energy, original schemes for bettering the social condition of his parishioners and of the community of which they formed a part. He made a point of ascertaining how they lived in their own homes, and of endeavoring to make the conditions of life as tolerable for them as possible. He was an earnest and enthusiastic advocate of total abstinence from intoxicating drinks, and he set, in his own daily life, an example for others to imitate. No man understood better the intimate connection between sound morality and favorable physical conditions, and he deliberately set himself to improve the latter with a view to promoting the former. If all members of his sacred calling were equally impressed with this great sociological truth, and equally earnest as social reformers, they would exercise collectively on the condition of society a much more appreciable influence than they now do.

But it is in his labors in connection with scholastic education that teachers are most interested. During his long residence in Lindsay he had an opportunity of carrying out a systematic plan, and his efforts were crowned with marked success. He did his utmost to make the separate school efficient, and, under his care, it began to attract even Protestant pupils to its classes. He induced his parishioners to put up a good building and supply it wtth the apparatus for physical training. He always favored the employment of high grade Provincial teachers and the use of the ordinary public school text-books. At his instance his people erected a convent building, in the management of which he pursued the same plan. Of late years it has become an admirable school for female teachers in training, and, as such, has been attended by candidates for public school certificates not of the Roman Catholic persuation.

Father Stafford's life work in the cause of social reform and the education of the masses will exercise an influence long after his personality is forgotten. Though a zealous churchman, and a skilled controversialist, he was not merely respected but popular with other denominations. His latest appearance before the public was in connection with the "Marmion" controversy; and, had that vexed question been discussed by all the disputants in his spirit and manner, the public mind would have been less exercised over a problem which admitted after all of an easy solution.

EDUCATIONAL LEGISLATION.

The Ontario Legislature has been summoned to meet for the despatch of business about the middle of December. As this is the last session of a parliament there is not likely to be much legislation carried through that will bear to be postponed, and, so far as education is concerned, this is matter for congratulation. What is wanted now is not relief from change for a single year, but for a term of years, if only the power of constraining municipal corporations in the matter of taxation were restored to school boards. The law as it

stands is a good one, and, when well administered, shows excellent results. Even when defects manifest themselves it is not well to be for ever trying to remedy them by new statutory enactments. Any attempt to readjust one part of so complicated a machine as our educational system is apt to throw some other part out of gear, and, for this reason, it is to be hoped that no change, however apparently unimportant, will hereafter be made in the school law without the proposal having been allowed to stand over for a year after it is first made in the Legislature. It is of the utmost consequence that the masses should be acquainted with the school law, and it is quite impossible to be familiar with the provisions of a statute that is from year to year changing its form. One source of the trouble is that each member of the Assembly feels himself quite competent to amend the school law, with the working of which he is so familiar, and, as all are naturally desirous of accomplishing something, the result is a kind of dead set on the system. That some improvements have resulted from this go-as-you-please method in the past is not be denied, but it seems to be time for the Government to call a halt in the matter of amateur legislation, and declare that well enough must for a while be let alone.

DR. McLELLAN AND TEACHERS' INSTITUTES.

In spite of the arduous nature of his duties as high school inspector, member of the Central Committee, and Director of the Provincial Normal Schools, our readers will notice that Dr. McLellan finds time to appear frequently at teachers' institutes, and the following communication will show how his services are appreciated. We need hardly say that many other tributes, equally cordial, have come under our notice :—

Mr. Editor—

I hope that you may allow me a small space in your journal to make a few statements in reference to the above. The immense practical benefits resulting from properly conducted institutes are recognized by the Department, and liberal grants are made by it towards promoting their efficiency. This I consider a wise provision, as the teachers are thus materially assisted in procuring the services of some of our leading educational workers. The last meeting of the West Bruce Teachers' Association, held in Kincardine a short time ago, was admitted by all to be the most enjoyable and instructive one since its organization. Dr. McLellan, High School Inspector, was present and delighted the teachers with his lectures on important subjects taught in our schools.

The energy and enthusiasm which he not only manifests himself but arouses in the teachers ; his qualifications both as a teacher and as a scholar ; the thoroughly systematic and intellectual manner in which he presents the subjects with which he is dealing ; and his evident sympathy with the teachers in their noble work, fit him in a very marked degree to elevate Teachers' Institutes to something like their true position, and make them the means of disseminating true methods of teaching, and of imparting what may be called the higher knowledge of the science of education. He never fails to impress the solemn responsibility of moulding character and of shaping in no small degree the destiny of both the people and the country. I firmly believe Sir, that it is the earnest prayer of all who have the welfare of this young Province of ours at heart, that Dr. McLellan may long be spared to assist in perfecting that system of education which is the pride of our country, and with which his name is so closely connected.

Yours,

Teacher.

Kincardine, Nov. 9th, 1882.

HONOR TO A CANADIAN.

We have much pleasure in clipping from the Toronto *Globe* the following paragraph :

At the present day perhaps no other branch of scientific study is pursued with greater vigour than is that of mathematics, nor is there any in which the labours of investigators are rewarded by results of greater interest and utility. On this continent the study of the higher mathematics has lately received fresh impetus by the publication, under the auspices of Johns Hopkins University, of a large quarterly called the *American Journal of Mathematics*. This journal is edited by Dr. Sylvester, one of the ablest of living mathematicians, and in it are published original investigations in pure and applied mathematics. Numbering, as it does, on its list of contributors many names of world-wide fame, this periodical may be regarded as the exponent of the best that modern talent is producing in this important branch of science, and therefore the publication in it of any paper is a sufficient guarantee of intrinsic merit. The fourth volume of this journal is just complete, and contains much that is deeply interesting to mathematicians, among which not the least in importance are two elaborate papers by Mr. J. C. Glashan of Ottawa. In the first of these papers three of the most important series of the Differential Calculus are developed by a uniform method remarkable for its generality, completeness, and simplicity. The second paper, under the title of "Forms of Roll's Theorem," gives new and lucid demonstrations of nearly all the important propositions relating to the development of functions of simple and complex variables, and also exhibits, in the most general form yet published, the remainders in Taylor's, Cayley's, and Lagrange's series. These papers form an excellent supplement to what is contained in our college text-books upon the subjects of which they treat, and a careful study of them will put the student in possession of the most complete treatment which the development of functions has yet received.

When we have said that Mr. Glashan is still a comparatively young man, that he never had a collegiate training, that in all the higher mathematics he is in the fullest sense of the word self-taught, and that he has acquired his knowledge of his favorite science during the brief spells of leisure interspersed like oases throughout the busy life of a teacher and inspector, we have told enough to enforce the obvious moral which the above paragraph contains for all his fellow-workers in the educational ranks. How much of his achievements is due to a remarkable order of intellect, and how much to persevering industry, perhaps not even Mr. Glashan himself could say, but it is safe to assert that, were teachers generally to devote their spare moments to self-culture as systematically as he has done, many of them would soon astonish themselves by the effect on their own mental and professional condition.

INTERMEDIATE CHANGES.

With a view to giving as much publicity as possible to the changes made by the Education Department in the intermediate programme we republish the following regulation which was recently adopted by order-in-council :—

1. Drawing is removed from the obligatory subjects of study in the Lower Schools and in the Intermediate. The item, 7 e. now 6 e., in the optional subjects therein shall therefore, read, "French or German, and, when selected by the parent or guardian of such pupil, music or drawing."

2. In the subject of English Literature prescribed by the Order-in-Council, of the 31st March last, "Goldsmith's Traveller," or "Marmion" may be used by any pupil in the High School, or candidate at the departmental examinations in July next, as the parent or guardian may select.

It will be noticed that the option between "Marmion" and "The Traveller" is for the July Examination only. The arrangement for next year's work is not specified.

—The Rev. Dr. Allison, the accomplished and energetic chief superintendent of Education for Nova Scotia has been for some days past in Toronto in attendance at the joint meeting of the Union Committees of the various Methodist bodies. Readers of the SCHOOL JOURNAL do not need to be told that he is performing an excellent work in his own Province, and they will welcome from his pen the cordial and truly catholic notice in this number of his eminent fellow educationist the late Father Stafford of Lindsay. It is a hopeful sign of the times when so good a Methodist as Dr. Allison can be found volunteering such a tribute to so good a Roman Catholic as Father Stafford without any danger of being misunderstood It is indicative of the good time near at hand when the reign of bigotry in educational matters shall come to an end.

—We publish this month a portion of the address recently delivered at the opening of the Normal School session in New Brunswick by the Principal, W. Crocket, M.A. It is worthy of attentive perusal, not merely as showing on his part a strong grasp of educational questions, but also because of the work he has achieved and is still actively carrying on. As a matter of fact, much as we boast of our educational progress in Ontario, the sister Province of New Brunswick is rather ahead of than behind us, and to Mr. Crocket belongs a considerable share of the credit for this state of affairs. He is one of the most advanced of pedagogues, and, with the Superintendent, Dr. Rand, is earnestly bent on keeping the teaching profession fully abreast of the educational reform movement which now extends over the great American continent with little respect to political boundaries. The more our teachers know of what is going on in other Provinces the better, and one way of acquiring such knowledge is the perusal of such addresses.

—Some time ago one of the Port Hope papers made a statement to the effect that the abominable practice of swearing was far too prevalent in the schools of that town. Unfortunately there is too much bad language used by the pupils of all towns. They hear it used by men on the streets, and are too apt to imitate their elders. The teachers have only a very limited control over the pupils outside of the school-room, and therefore it is quite impossible to eradicate such a habit completely. There is no reason, however, to suppose that it is more prevalent in Port Hope than elsewhere, though this sinister inference from the statements of the local journal was suggested in connection with the Bible-in-Schools controversy. On the contrary it is well known that both the high and the public schools of Port Hope are exceptionally well managed. Mr. Purslow and Mr. Goggin, the head masters, are teachers and disciplinarians of the first rank, and we have good reason to know that they have the cordial cooperation of the school board and the people. It should be possible to state the truth about the inevitable swearing in schools without any chance of the remark being distorted to the prejudice of teachers and of a whole locality, but it seems to be expecting too much to hope for such a display of candor.

—The election of Mr. J. L. Hughes, inspector of public schools for Toronto, as Vice-President of the Froebel Society is a well merited compliment. Mr. Hughes has done much to spread a knowledge of kindergarten methods in Ontario, and has by persevering effort paved the way for the official recognition of the system. The kindergarten is destined to replace the old-fashioned infant schools and classes, and the practical educationist who by his efforts hastens that change is a public benefactor.

We are frequently in receipt of letters from teachers enquiring as to their prospects in changing their occupation. They would like to get into an office or some position of that kind. Unfortunately for them owing to the nature of their education this is very difficult. When teachers contemplate entering the profession they should either determine whether they will stick to it for life or select some other occupation. If they intend following business pursuits they should not spend any time in teaching; but immediately qualify themselves to enter upon their life-work. We know of no place better adapted for this special mercantile training than in the British American Business College in this city. Its announcement in another part of this paper is worthy of perusal.

Correspondence.

To the Editor of the Canada School Journal.

SIR:—At the last meeting of our association, which was held at Arthur, on the 12th and 13th October, it was moved by James McMurchy, B.A., head master of Harriston high school, and seconded by Joseph Reid, B.A., LL.B., head master of Mount Forest high school, that you be requested to publish the report of the Committee on Readers which was passed at Mount Forest in May. Some of our teachers had never seen the report in print, and they did not think the association had been fairly treated by you. So highly are your new Readers held in our esteem, that it is almost needless to inform you the the resolution was carried unanimously.

REPORT OF COMMITTEE ON READERS.

We, your Committee on Readers, beg leave to report (first) that a change in the present series of Public School Readers is, in our opinion, a matter of necessity in the interest of education for the Province of Ontario; (second) that having examined Messrs. Gage & Co.'s Readers (Canadian Readers, by Prof. Meiklejohn) we consider them admirably adapted for use in our Public Schools.

All of which is respectfully submitted.

ARCHIBALD MACPHERSON, *H. M., Arthur Village P. S.*
LEOPOLD DAVIDSON, *H. M., Glenallan P. S.*
R. R. HOPKINS, *H. M., Harriston P. S.*
JOSEPH REID, B.A., LL.B., *H. M., Mount Forest H. S.*
DAVID P. CLAPP, B.A., *Inspector of North Wellington.*

There were seventy (70) teachers present at the Arthur meeting. I can only add on behalf of the association my entire approval of your Readers, and that "they are admirably adapted for use in our public schools."

I remain, yours respectfully,

WM. MCEACHERN,
Secretary, N. W. T. A.

Harriston, Nov. 9, 1882.

Mathematical Department.

ELEMENTARY ALGEBRA.

Many of our readers are pursuing this science without the help of teachers. We continue from the May number examples of methods likely to be of service to our friends, and insert questions for practice.

1. Given $(a+x)^4=a^4+4a^3x+6a^2x^2+4ax^3+x^4$; deduce from this the expression for $(a+b+c)^4$.

We see by symmetry that

$$\begin{aligned}(a+b+c)^4=a^4&+4a^3b+6a^2b^2+R\\&+b^4+4a^3c+6a^2c^2\\&+c^4+4b^3a+6b^2c^2\\&+4b^3c\\&+4c^3a\\&+4c^3b,\end{aligned}$$

where R is the remaining terms of the expression, which must be of the forms a^2bc, b^2ac, c^2ab. Now to find the numerical coefficient of these remaining terms put $a=b=c=1$, and $(a+b+c)^4$ becomes $=81$; which shows that the expression must contain 81 terms. But the part already written down contains 45 terms, thus the remaining part must consist of 36 terms, and as the expression is symmetrical, the coefficients of a^2bc, b^2ac, c^2ab must each$=12$. Thus the column denoted by R is $12a^2bc+12b^2ac+12c^2ab$.

2. Prove that $(x^2-yz)^3+(y^2-xz)^3+(z^2-xy)^3-3(x^2-yz)(y^2-xz)(z^2-xy)$ is a perfect square.

We have solved this in several forms on various examination papers. Let our readers do it themselves. Hint: Combine each cube with one of the three products ( )( )( ) and factor.

3. Prove that $(a^2+b^2+c^2)^3+2(ab+bc+ca)^3-3(a^2+b^2+c^2)(ab+bc+ca)^2$ is a perfect square.

Put $x=a^2+b^2+c^2$ and $y=ab+bc+ca$ and the expression becomes $x^3+2y^3+3xy^2$, which is easily factored$=(x-y)^2(x+2y)$. Restore the values of x and y and we have $(a^2+b^2+c^2-ab-bc-ca)^2(a+b+c)$
$=(a^3+b^3+c^3-3abc)^2$.

Apply this method to No. 2.

4. Factor $1-\left\{\dfrac{a^2+b^2-c^2-d^2}{2(ab+cd)}\right\}^2$

Ans. $\dfrac{(a+b+c-d)(a+b-c+d)(a-b+c+d)(-a+b+c+d)}{4(ab+cd)^2}$

5. Find the value of $\dfrac{1}{ab-ax}-\dfrac{1}{bx-ab}+\dfrac{x}{(x-a)(bc-cx)}$,

when $x=\dfrac{2abc}{ab+ac+bc}$.

$$\text{Expression}=-\frac{1}{a(x-b)}\quad\frac{1}{b(x-a)}-\frac{x}{c(x-a)(x-b)}$$

$$=-\frac{\frac{1}{a}}{(x-b)}-\frac{\frac{1}{b}}{(x-a)}-\frac{\frac{x}{c}}{(x-a)(x-b)}$$

$$=-\frac{\frac{1}{a}(x-a)-\frac{1}{b}(x-b)-\frac{x}{c}}{(x-a)(x+b)}$$

$$=-\frac{\frac{x}{a}-\frac{x}{b}-\frac{x}{c}+2}{(x-a)(x-b)}=\frac{0}{(x-a)(x-b)}=0.$$

6. Find the value of $\dfrac{1}{x-3a}+\dfrac{1}{x-3b}+\dfrac{1}{x+3c}$ when

$\dfrac{1}{a}+\dfrac{1}{b}=\dfrac{1}{c}$ and $x=2(a+b+c)$

Restore the symmetry by writing $-c$ for c throughout the three expressions.

Then numerator of sum in 1st expression.

$=(x-3b)(x-3c)+(x-3a)(x-3c)+(x-3a)(x-3b)$
$=3\{x^2-2(a+b+c)x+3(ab+ac+bc)\}$.

But $x=2(a+b+c)$ $\therefore$ 1st & 2nd terms cancel: also $\dfrac{1}{a}+\dfrac{1}{b}+\dfrac{1}{c}=0$

$\therefore$ 3rd term $=0$, *i.e.* expression $=0$.

7. Prove that $(1-a^2)(1-b^2)(1-c^2)-(c+ab)(b+ac)(a+bc)$ is divisible by $(1+abc)$.

Write x for abc throughout, and

$$\text{Expression}=(1-a^2)(1-b^2)(1-c^2)-\frac{1}{x}(x+a^2)(x+b^2)(x+c^2)$$

Observe that if $x=-1$ the expression $=0$ $\therefore$ $x+1$ is a factor, *i.e.*, $abc+1$ is a factor.

8. Show that $x^{4n}+x^{2n}+1=(x^2+x+1)(x^2-x+1)(x^4-x^2+1)\ldots\ldots(x^{2n}-x^n+1)$. Hint: $(a^2+ab+b^2)(a^2-ab+b^2)=a^4+a^2b^2+b^4$.

9. If ax^2+bx+c and $a_1x^2+b_1x+c_1$ have a common factor of the form $x+m$, prove that $(a_1b-ab_1)(b_1c-bc_1)=(a_1c-ac_1)^2$.

Call 1st expression R and 2nd expression S.

Take a_1R-aS and remainder $=x+\dfrac{a_1c-ac_1}{a_1b-ab_1}$

Also c_1R-cS gives remainder $=x+\dfrac{b_1c-bc_1}{a_1c-ac_1}$, and each of these remainders must be divisible by the common factor $x+m$,—for "every measure of R and S must measure $mR\pm nS$." Hence it is manifest that we must have $\dfrac{a_1c-ac_1}{a_1b-ab_1}=\dfrac{b_1c-bc_1}{a_1c-ac_1}$. Clear of fractions. Q. E. D.

10. If ax^3+3bx^2+d and $bx^3+3dc+e$ have a common factor of one dimension then $(4bd-ae)^3+27(ad^2+b^2e)^2=0$.

As in 9, take $bR-aS$, also $eR-dS$, and write m for $(bd-ae)$ and we get $T=3b^2x^2-3adx+m$; $U=mx^2-3bex+3d^2$.

Then as in 9, the final condition is

$(3bem-9ad^3)(3adm-9b^3e)=(m^2-9b^2d^2)^2$. Strike out common factor m and the required result appears. Our readers may verify the above skeleton solution.

11. Show $\dfrac{1}{1+x^{m-n}+x^{m-p}}+\dfrac{1}{1+x^{n-m}+x^{n-p}}+\dfrac{1}{1+x^{p-m}+x^{p-n}}=1.$

Hint: Multiply terms of 1st by x^{-m}, of 2nd by x^{-n}, of 3rd by x^{-p}. Find other multipliers which will accomplish the same purpose.

12. If $\dfrac{1}{1+a+ac}+\dfrac{b}{1+b+ab}+\dfrac{bc}{1+c+bc}=1$ and

$\dfrac{a}{1+a+ac}+\dfrac{ba}{1+b+ba}+\dfrac{1}{1+c+bc}=1$ and none of the denominators$=0$ then must $a=b=c$.

Take $aR-S$ $\therefore$ $a=\dfrac{1+b}{1+c}.c$ Substitute this in 1st expression (R) and $b=c$, similarly $a=c$.

SECOND PREVIOUS EXAMINATION CAMBRIDGE

ARITHMETIC.

1. Find the quotient obtained by dividing the product of the seven whole numbers next in order after 30 by the product of the first seven whole numbers. *Ans.* 10295472.

2. The circumferences of the large and small wheels of a bicycle are 176 inches and 48 inches respectively. How many more turns will the latter have made than the former if the machine goes a distance of 15 miles? *Ans.* 14400.

3. Express the difference between $1-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}$ and $\frac{1}{2}+\frac{1}{4}+\frac{1}{6}+\frac{1}{8}$ as a vulgar fraction in its lowest terms. *Ans.* $\frac{90}{231}$.

4. Multiply ·01019 by 23·04 and divide ·01342 by ·0055. *Ans.* ·2347776; 2·44.

5. Express the quotient of $\cdot\dot{2}\dot{1}$ divided by $\cdot\dot{0}1\dot{1}$ as a decimal *Ans.* $19\cdot\dot{0}\dot{9}$

6. Find the cost of 2 tons. 3 lbs. 5 oz. @ 3*s.* 4*d.* per lb. (long ton.) *Ans.* £747. 4*s.* $4\frac{1}{2}$*d.*

7. A level tract of land 20 miles long and $\frac{3}{4}$ of a mile broad is flooded to a depth of 5 feet. Given that a cubic foot of water weighs 62lbs. find in tons the weight of water on the land. (long ton.) *Ans.* $578725713\frac{3}{7}$.

8. A sovereign is worth 4 dollars 7 cents in America, and 25 francs 2 centimes in French money. How many cents will a man lose who changes £15 at the rate of 25 francs for 1£? (A franc=100 centimes: a dollar=100 cents.) *Ans.* $4\frac{31}{117}$.

9. Two men A and B working alone can finish a piece of work in 7 and 8 hours respectively. If they work at it for an hour alternately, A beginning, in how many hours will the work be finished? *Ans.* $7\frac{3}{7}$.

10. Find the amount of £400 in $2\frac{1}{2}$ years, reckoning compound interest at 4 per cent. *Ans.* £441. 5*s.* 10·272*d.*

11. A man buys 5 per cent. foreign stock at 40 and sells out at the end of the year when the stock has fallen to 38. What does he gain per cent. on the transaction? *Ans.* $7\frac{1}{2}$ per cent.

12. The excess of the present value of a sum due in one year, reckoning interest at 5 per cent., over the present value when interest is reckoned at 6 per cent. is 10*s.* Find the sum. *Ans.* £55. 13*s.*

CAMBRIDGE ENG.—PREVIOUS EXAMINATION.

MECHANICS.

1. Explain why it is allowable to represent forces by straight lines. Enunciate the polygon of forces.

2. Assuming the parallelogram of forces, prove that if P, Q be two forces acting upon a particle, and if a be the angle between their directions, then their resultant R is given by the formula $R^2=P^2+Q^2+2PQ\cos a$.

A particle is acted upon by a force of 1lb towards the East, and by a force of 2 lbs. towards the North-West, find the magnitude of the resultant. *Ans.* $\sqrt{(5-2\sqrt{2})}$ lbs.

3. Resolve a force of 9 lbs. into two others, each making an angle of 60° with it. *Ans.* Each force = 9 lbs.

4. Find the magnitude and position of the resultant of two parallel forces acting in opposite directions.

Parallel forces 3lbs. and 7lbs. act in the same directions at points A and B distant 20 inches apart. How far from the middle point of AB does their resultant cut AB? *Ans.* 4 inches.

5. Prove that the centre of gravity of a triangle AB is at G, where $AG=\frac{2}{3}AD$, D being the middle point of BC.

Having given the centre of gravity of each of two parts of known magnitude into which a body is divided, show how to deduce the position of the centre of gravity of the whole body.

6. If two forces acting on a lever keep it in equilibrium, prove that they are inversely proportional to the perpendiculars let fall upon them from the fulcrum.

The shorter arm of a lever is 7 inches in length; if the lever be in equilibrum when weights of 5lbs. and 8lbs. are suspended from its arms, find the length of the other arm. *Ans.* $11\frac{1}{5}$ inches.

7. In the system of pullies in which all the strings are attached to the weight, find the relation between the power and the weight when the system is in equilibrium, neglecting the weights of the pullies.

If the system consists of only two pullies, the lower of which weighs 5lbs. and if the power is 3lbs., find the weight. *Ans.* 14lbs.

8. Describe the Roman steelyard and explain what is meant by graduating it. AB is a Roman steelyard 10ft. long: its centre of gravity is 9in. from A, and the fulcrum 6in. from A. If the weight of the steelyard be 8lbs. and that of the moveable weight 1lb., find how many inches from B the graduation marked 12lbs. will be. *Ans.* 66.

9. A particle of given weight W is in equilibrium upon an inclined plane, whose inclination to the horizon is ∞, under the action of a force whose direction is parallel to the plane; find the force and also the pressure on the plane.

A particle weighing 9lbs. is in equilibrium upon an inclined plane under the action of a horizontal force of $3\sqrt{3}$lbs.; find the inclination of the plane, and the pressure upon it. *Ans.* 30°, $6\sqrt{3}$lbs.

CAMBRIDGE—ORDINARY B. A. DEGREE.

HYDROSTATICS.

1. How is fluid pressure measured? If the atmospheric pressure be 14lbs. on the square inch, what will be its measure in cwts. on a sq. ft.?

tent under the action of gravity is a horizontal plane.

Compare the pressures at points 2 and 18 inches respectively below the surface of a basin of mercury, taking into account the atmospheric pressure when the barometer stands at 30in.

3. Show that the resultant on a body immersed in a fluid is equal to the weight of the fluid displaced.

If a body float immersed in one or more fluids state the conditions of equilibrium.

A body exposed to atmospheric pressure has volumes V_2, V_1, respectively immersed when it floats in fluids whose specific gravities are s_2, s_1. Shew that $V_2(s_2-r)=V_1(s_1-r)$.

4. Define specific gravity, and describe Nicholson's Hydrometer. What are its advantages over the common hydrometer?

5. Describe Hawksbee's air pump and explain its advantages and disadvantages.

If the capacity of each barrel be one-fourth that of the receiver, and the mercurial gauge at the commencement of the operation stand at 30 inches, what will be the least number of strokes which will reduce the height of the guage to 5 inches?

6. Distinguish between a liquid and a gas.

Describe the experiment by which it is shown thst the pressure of a gas at constant temperature varies as its density.

A hollow cylinder, closed at one end with its open end on the surface of a fluid, and forced vertically downwards till the closed end of the cylinder is on the surface of the fluid. Show that if the height of the cylinder be 6,h the air in the cylinder will occupy one-third of its volume, h being the height of the fluid barometer.

ANSWERS TO PROBLEMS, PAGE 180.

1. Solution by John Coyne, Staffa, Ont.:—

Let A be the point of suspension; BAC the triangle suspended from the right angle A; and EAD when suspended from the acute angle; so that $AD=AB$, $AE=BC$, and $DE=AC$. The vertical passes through O, the middle point of BC; take F, the middle point of AE. join DF. Let N be the point where AE cuts BC and H, where FD cuts the vertical from the right angle. Now $FD=FA$, $\therefore \angle FDA = \angle FAD = OBA = \angle OAB$, $\therefore OB = OA$. $\therefore$ by subtracting the common angle FAH, $\angle BAN = DAH$, $\therefore$ I. 4. $\triangle BAN = \triangle DAH$, and $HD = BN$.

But $BO = FD = \frac{1}{2}$ hypoth; also $DH = 2HF \therefore BN = 2NO$.

Now $AC^2 = AO^2 + OC^2 + 2NO.OC$.

$AB^2 = AO^2 + OB^2 - 2NO.OC$.

$\therefore AC^2 - AB^2 = 4NO.OC = 2NO.2OC = BN.BC = BA^2$.

$\therefore AC^2 = 2AB^2$, or $AC : AB :: \sqrt{2} : 1$.

Remark. Mr. C. has not assumed that any of the sides will coincide. But it is easy to show that AD will coincide with AC, the other side containing the right angle, by remembering that each acute angle is the complement of the other. The proof then becomes more simple.

J. H. Philip, Belgrave, endeavours to show that the problem is impossible, as follows: Let ABC be the given $\triangle$ and D and E the middle points of BE and CA. Then by hyp. AD must be at rt. $\angle$'s to BE. Let the point of intersection be F. Hence $AB = BD = \frac{1}{2}BC = \frac{1}{2}AC$ *i. e.* $AC = BC$, and ABC cannot be rt. $\angle$'d at B or C. *i. e.* the case cannot occur.

2. Most of the solutions received to this problem *assume* that the line bisecting the angle will fall on that side of the line bisecting the base nearest the greater angle. The following solution is due to F. Congdon, B.A., Halifax, N. S.: Let ABC be the $\triangle$, A being the vertex. If $AB = AC$ the bisecting lines coincide and cut the base at rt. angles. But let $AC > AB$, and let AP bisect the angle. Make $AD = AB$, join PD. Then the $\triangle$'s ABP and ADP are equal I. 4. And $\angle PDC > APD = APB > DCP \therefore PC > PD = BP \therefore$ the middle pt. of BC is in PC. Let Q be this point, join AQ. Then $\angle APB > AQP$, and $APQ > APD = APB$, $\therefore APQ$ is still $> AQP$, $\therefore AQ > AP$.

3. This is best effected by an algebraical analysis. Let a be the line, x its produced part, and b the other given line. Then we require $(a+x)b = x^2 \therefore x = \frac{1}{2}(b \pm \sqrt{b^2+4ab}$. This gives us the construction: On b describe a square, produce one side a distance equal to four times a, complete the rectangle; find PQ the side of a square equal to this rectangle as in II. 14. Produce PQ a distance $= b$. Half this line is equal to the distance a must be produced. Other constructions easily suggest themselves from the formula.

Solution by M. S. McKay, Carriboo River, N. S.:

Let AB and x be the given lines. Produce AB to N and make $BN = x$, on AN describe a semi-circle, draw BS at rt. angles to AN, bisect BN in Y. Join Y with S the point of intersection of the semi-circle on AN with BS. With Y as a centre and YS as a radius describe a circle, produce AN until it meets the circumference in Q. AB is produced to the reqd. point Q. $\therefore SB^2 = SY^2 - BY^2$ (Euc. I. 47.) $\therefore SB^2 = YQ - BY^2$ then $SB^2 = (QY + BY)(QY - BY)$ (Hamblin S. II. B.) or $SB^2 = QB.NQ$. But $SB^2 = AB.BN$ (Euc. III. 31., II. 4., I. 47.) $\therefore AB.BN = QB.NQ$ then by adding to each of these $QB.BN$. $AB.BN + QB.BN = QB.NQ + QB.BN = AQ.BN = BQ^2$. But $BN = X \therefore AQ.X = BQ^2$.

4. Let h = height of pole, then $(h-y)^2 + (x^2 - y^2) = h^2$ whence $h = \frac{x^2}{2y}$. Some of our friends took x ft. from the pole *along the ground* and obtained $h = \frac{x^2+y^2}{2y}$.

5. Cube (1), square (2) take sq. rt. of diffce. and $3x^2q + y^3 = (b^6 - a^6)^{\frac{1}{2}}$. Add and subtract this to (2) and take the cube root and $x \pm y = \{b^3 \pm \sqrt{(b^6 - a^6)}\}^{\frac{1}{3}}$ whence x and y are fonnd by addition and subtraction $= \frac{1}{2}\{b^3 + \sqrt{b^6 - a^6}\}^{\frac{1}{3}} \pm \frac{1}{2}\{b^3 - \sqrt{b^6 - a^6}\}^{\frac{1}{3}}$ respectively.

6. *Ans.* 10 gallons.

7. This is really $\sin^2 x + \cos^2 x$, and of course = 1. It may be proved however by simply writing down the squares and adding them together when all the terms vanish except the 1. None of our correspondents solved this problem.

8. Solution by Mrs. Geo. C. Warburton, Toronto:

Let a and b represent the numbers, g their G. C. M., and m their L. C. M., then $m = \frac{ab}{g} = \frac{ab}{16} \therefore 16 \times 192 = ab$; *i. e.* $16 \times 16 \times 3 \times 4 = ab$, $\therefore$ 48 and 64, or 16 and 192 are the numbers.

9. Solution by the same:

He had lived 172 days in 1851, counting back to the beginning of the leap year, 1848, (172+365+365+366) = 1268 days.

30000 − 1268 = 28732. In each preceding 4 years there were (365 × 3 + 366) = 1471 days. 28732 ÷ 1471 = 19 and remainder 973 days. Hence he had lived (19 × 4 + 4) years and 973 days = 82 years and 243 days. 1851–82 = 1769, and 365 − 243 = 122.

If 1800 had been leap year, his birthday would have been the 122nd day of 1769, but as *1880 was not leap year*, it fell on the 121st day, *i.e.* on May 1st, 1769.

Many of our correspondents placed it on the 2nd of May.

Mr. G. M. Dockrill, Florence, solved Nos. 4 and 6.

Mr. F. G. Haney, Montreal, No. 6.

Miss Harriet J. Hart, Kingsville, 6 and 8.

Mr. D. M. Chisholm, Caledonia Mills, Antigonish, 5 and 6.

Mr. Jas. H. Philip, Belgrave, 1, 2, 4, 5, and 6.

Mr. M. S. McKay, Carriboo River, N. S., No. 3.

Mr. Robert Drinnan, Medonte, 4, 6, 8 and 9.

Mrs. G. C. Warburton, Toronto, No. 2, p. 103, and 2, 4, 6, 8 and 9, p. 180.

Mr. Geo. B. Dangerfield, Hintonburgh, 2, 4, 6, and 8.

Mr. John Ireland, Fergus, sends us a contribution on "Curiosities in Triangles."

We return cordial thanks to all our correspondents.

Special Articles.

THE PROBLEM OF TEACHING TO READ.

BY J. M. D. MEIKLEJOHN, M.A.

(Continued from last month.)

Our English notation having been thus left uncultivated and uncared for during many centuries, there now appeared upon the scene a force which might have done much for it, but which in reality did little or nothing—but a good deal against it.

This force was the Revival of Learning, which introduced the nation to the riches of Greek and Latin literature, and made learning an established power in England. It introduced us to books; and from these books— through the eye, and not through the ear —there came into our mother-speech thousands of words like *virtue*, *suggestion*, *opinion*, *alter*, *determine*, and so on. But these Latin words were perfectly regular, and were written in a quite self-consistent and harmonious notation; and, being introduced by the eye from books, mistakes were not made in the transcription or the printing of them, but they were transferred bodily and without change, into our own language. But all this time English notation—and even English style—was little cared for. Scholars wrote in Latin; and even as late as the time of Milton and Waller—well on into the seventeenth century, and after the appearance of our great dramatic literature—it was thought the right thing to compose in Latin. Milton thought of writing the works he hoped to live by in Latin; he was Foreign (or Latin) Secretary to Oliver Cromwell; and Waller goes so far as to say:

> Poets that lasting marble seek
> Must carve in Latin or in Greek.
> *We* write in sand; our language grows;
> And, like the tide, our work o'erflows.

This merely dialectic character, our then language has never been able to throw off. It is still, in style, in vocabulary, and above all, in its notation, a conglomerate of dialects—a pudding stone of local varieties. We possess, in fact, not one notation—but three. These three are the English, the Norman-French, and the Latin. Of these three, the English notation is the worst; the Norman-French is very bad; while the Latin notation is perfect.

But the whole of our language, as it is written down at present, is a blurred palimpsest; and the eye of the child is confused and demoralised by the attempt to decipher it. The page is scored all over with dialectic notations—for the language grew simultaneously from different centres, with fragments of Norman-French writing, and with fragments of classical Latin, not to mention the errors of copyists;* and this is what English children have to be taught. The language is full of marks—like *w*, *y*, *i*, *gh*, and *e*—which have no meaning or force whatever to the child, which are simply of value to the philologist as history;† while they are 'stumbling-blocks and rocks of offence' in the primary schoolroom.

The dialectic character of the language is every-where visible. Among scores of instances there is one that shews how our traditional usages of writing and pronouncing not only hinder the progress of the child, but obscure the plainest facts of the language. The simple symbol *one* we pronounce as if it were written *wun*. That is, we have adopted, for this word, a Dorsetshire or West of England pronunciation. We say *wun*; but we draw the line there, and we do not go on to say *wuts* for *oats*, or *woak* for *oak*. Again, in the compounds of o-n-e, we entirely discard the Dorsetshire pronunciation, and give it the simple sound which all analogy entitles it to have, and make it rhyme with *tone*. Thus in *only*, *alone*, and *atone*,‡ *one* has its correct and 'natural' sound.

It is unnecessary for our present purpose to go into the question of what an alphabet is, or of its history. It may suffice here to mention that all our present European alphabets seem to be decayed fragments of a pictured speech. The steps seem to be: picture; symbol; letter; and thus a letter is a short-hand representation of that which was once a more or less elaborate picture of an external thing. But, whatever may have been the past history of a letter, its use now—its only function at present is to serve as a signal. The three letters *h a t* serve as a signal to the child or other reader to say *hat*. There is to us in the present day no necessary relation between the sound *hat* and the letters which mark the sound upon paper; and the *names* of the letters—*aitch*, *ell*, *tea*, are, for the ordinary and unphilological reader, just as arbitrary, accidental, and essentially meaningless.

If, then, an alphabet can be fairly regarded as a *code of signals*, we have a new stand-point from which to examine our own alphabet. There are two necessary conditions of every good code of signals, and it is absolutely necessary that both of them be observed with the most minute accuracy. The two conditions are:

1*st*, Every signal must correspond to and ask for one thing and one thing only; and

2*d*, Each thing must be asked for by only one signal.

At first sight, these two conditions seem to be the same—only stated in different ways. But a little reflection will shew that this is not so.

If, for example, in H.M. navy, the signal of 456 asked a neighbouring ship for a tub, or a kind of shot, or a piece of rope, we should have the first canon violated; while, if gunpowder could be called for by some two or three signals—450 or 326 or 125—we should have the second condition not observed. Now this was just

* Such as the philological blunder of the *g* in *foreign* and *sovereign*; and the vulgar blunders in *tongue*, *grocer*, *foxglove*, &c.

† The gutturals of our language now disguise themselves as *w*, *gh*, *y*, *i*, &c.—as *w* in *sorrow*, as *gh* in *light*, as *y* in *day*, and as *i* in *hail*.

‡ *Atone*, in the sixteenth century, meant *to come together into one*. Thus Shakespeare has (in *As You Like It*, V. iv. 116):

> 'When earthly things, made even,
> Atone together.'

the condition of things in the navy before the time of Captain Marryat, the well-known novelist. The code of signals then in use had grown up by tradition; it was a mass of confusion; there was no principle in it; and blunders and even misfortunes were the result. But Captain Marryat took it in hand, introduced order and self-consistency into the notation and the practice of it; and I believe that his system is still at work in the British navy.

We expect, and the young child also naturally expects to find the signs written or printed on paper observe these two simple conditions. Every child expects—and his expectations on this head are both 'natural' and reasonable—that the form of a word shall change when the sound changes; and that the sound shall remain the same with the same form. How are these natural and reasonable expectations met? **N o** is *no*; add a **w**, and it is *now*. So far we are on firm ground. But put a **k** in front of *now*; and it is *no* again. Take the symbol **ow**, and add **c** to it, and it makes *cow*; but add **l** to it, and it is *low*. **O n** is *on*; and here again we are quite safe. But take one little—the very least step farther; and we are plunged into the middle of one of our south-western dialects. Add **e** to **o n**; and it becomes *wun*. But put **al** in front of it, and it is revived; it recovers its ancient habit, and becomes the regular and respectable *alone*. But front it with **g**, and it is *gone*; with a **d**, and it is *done*. **E r e** is *ere*; add **h**, and it is *here*; add **th**, and it is *there* again. **Y e s** is *yes*; but place an **e** in front of it, and it becomes *eyes*. Such is the manner in which our language keeps faith with the expectations of the child; at every third word it alters its course— it perpetually 'breaks the word of promise to the hope,' because it can keep it neither with eye nor with ear.

He expects, moreover, that the letters should be a guide to him in the recognition of the word. A letter, too, he thinks, will always stand for one sound; and one sound will be represented on paper by only one letter. If a letter stands for several sounds, it will be in the confusing condition of the signal that may call for several things; if a sound is represented by several letters, then the second malformation attaching to a code of signals could be asserted of this procedure. But, if one letter stands for only one sound, and one sound is always represented by only one letter, the child gradually accustoms himself to associate the one with the other; his experience is always true and self-consistent; and every act of attention he makes goes to the good—goes to build up the edifice of his knowledge.

But, in the most genuinely English part of the language, this is not at all the case. It is not only not the truth; it is the very opposite of truth. The child's experience is more upset in the notation of the words which are the native words of his own mother-tongue, than in any other part of our national language. The two malformations which infest our speech are there found in the highest degree and in their most virulent form. These two malformations are:

1*st*, **One symbol** or printed sign may be interpreted to the **ear** in from **two to nine different ways**. This is seen in the well-known case of the symbol *ough*, which is translated into sound in nine different ways. Thus:

B	ough	=	ow	The symbol *(ough)* remains the same; but the sound — which varied in the old dialects of England—still varies.
Bor	ough	=	u	
C	ough	=	off	
En	ough	=	uff	
H	ough	=	ock	
Hicc	ough	=	up	
Th	ough	=	o	
Thr	ough	=	oo	
Thor	ough	=	o	

2*d*, The second malformation consists in this—that the **sound** remains the **same**, but the **symbol**—or way of writing or printing it—is **constantly changing**. Thus we have:

W	ai	t	Here there are five different symbols to represent to the eye one sound.
W	eigh	t	
Gr	ea	t	
Th	ey		
S	ay		

These two phenomena are the parents of difficulties and confusions, 'never ending, still beginning,' which are felt every year in the infant and younger classes of our schools; but, because the nature of them has not been fully examined and exactly estimated, no complete remedial measures have as yet been taken.

(To be continued.)

FATHER STAFFORD—A REMISCENCE AND A TRIBUTE.

I know no more fitting medium than the CANADA SCHOOL JOURNAL through which to offer a tribute of esteem to the memory of the late Father Stafford. My acquaintance with him, personally, was of the briefest,—that which is gained and measured by the seven or eight days of an Atlantic voyage. I have no particular knowledge of the work of his life, but only that general conception of its scope and value which is to be gained from the emphatic and concurrent commendation which his labors have won from all who have directly witnessed their results. Still less can I lay claim to any such familiarity with his habits of thought, his favorite studies and authors, his special endowments, with, in short, the inward and invisible basis of his character as would warrant elaborate reflections on his virtues. I note simply the impressions made during the brief associations to which I have referred. But these impressions are ineffaceable.

On the 21st of October, 1881, I first met the now deceased clergyman on the Allan quay at Londonderry, Ireland, where, with a group of voyagers looking wistfully westward, I had been standing for hours, awaiting the arrival of the train from Dublin with supplementary mails and passengers for Canada. During those impatient hours under a leaden sky, the grimy little tender which was to convey us down Lough Foyle to Moville, where the good steamship *Parisian* lay in waiting, had given repeated and somewhat deceptive intimations of her readiness, if not her anxiety, to get through with *her* part of the business of transporting us to our western homes. Horace's philosophy of making lighter by patience the unavoidable ills of life was, I fear, not acted upon by *all* the passengers thus held in check under disagreeable circumstances. But a tremendous gale, sweeping the British coasts the night before, had detained the mail steamer from Holyhead, and the belated train, about whose movements we were so anxious, was simply proving that nature is still sometimes stronger than man.

The first *car* (according to the Irish *usus loquendi)* from the train, when at length it *did* arrive, brought down upon the quay the worthy priest to whose memory I am paying this slight mark of respect. I can never forget the frank and courteous salutation by which he announced himself a fellow passenger and a Canadian, much less the pleasant intercourse which enlivened and beautified the dreary days of storm and danger which followed. Fortunately we were both of the small percentage of passengers from whom Neptune exacted no tribute, so out of those October gales grew opportunities for quiet converse which calmer seas might have denied. Having gone abroad in quest of health, he was returning home with full belief that the treasure sought had been secured on a permanent tenure and he was correspondingly light of heart. His spirits too

were cheered by the prospect of speedy re-entrance upon the labors to which he was so much devoted.

Let me briefly note one or two of the impressions left upon my mind:

1. That he possessed a mind of a commandingly judicial type. What men call their convictions are often little more than proepossessions or prejudices, as the case may be, hastily adopted on *ex parte* information, often the creations of pure accident, or without any warrant whatever in either reason or fact. Mr. Stafford's opinions, whether I agreed with them or not, I could not but recognize as the outcome of mature and dispassionate reflection. A conscientious desire to estimate at their full value considerations urged in modification of his own views was very manifest.

2. That his ability to "distinguish between things that differ" was particularly conspicuous in his treatment of the great problems of popular education. He found much to approve of in the schools and school systems of various European countries, expressing, however, a decided opinion that in important respects these might learn valuable educational lessons from Canada. His views on the educational requirements of our own country, on methods of instruction, on the necessity of professionally trained teachers, and cognate subjects explained the secret of his own success as a patron of education.

As we parted at Rimouski he placed in my hands a budget of letters and despatches to give friends an intimation of his safe and to them unexpected early return. In just a year the circle of his earthly labor was completed.

Education Office, Halifax, Nov. 16th, 1882. D. ALLISON.

THE IMPORTANCE OF METHOD IN EDUCATION*

It will depend upon the use of the means, or the method employed by the teacher, whether or not he can accomplish the work expected of him. There are two ways by which knowledge is gained: one is finding the knowledge ready made: the other is through the exertion of the mind itself. The method will determine two things—the character and amount of knowledge, and the character of the training acquired in coming into possession of the knowledge. Proper mental training always brings two results—a consciousness of increased power and at the same time a consciousness of the possession of new knowledge. The ready made knowledge may be got from a book or be given to us by another. Whether the knowledge will be of any real value to us will depend upon the mind's action in conection with it. If the mind put forth no act the knowledge cannot be taken in—it is left out in the cold, to use a common expression—it does not grow, it has no root, it withers away. It is this kind of knowledge that can never be found when wanted, or if perchance it may have reached that part of the brain called by physiologists sensorium, which has the power of reproducing its impressions just as a parrot can, it can be reproduced at a given signal. The fact, or rule, or whatever it may be, is glibly repeated and passes for knowledge, but the pupil can apply it to nothing except to some particular case with which it was previously associated. When some one else than his teacher questions him, he does not understand, does not know what is meant—the signal is not the same. He often hazards an answer which may be a correct one to another question but absurd to the one proposed, and as ludicrous as the scene which has been described between Frederick William the Great and a tall French grenadier who knew only three words of German. He was instructed to reply to the King's three general questions on parade, "How old are you?" "Three and twenty." "How long have you been in my service?" "Three years." "Are you satisfied with your rations and lodgings?" "Both your Majesty." The King, however, took the very unusual course of inverting the first two questions and the grenadier of course made himself three years old and twenty-three years in His Majesty's service. The king amazed at such answers did not put the other question about the rations, but the inquiry, "Are you a fool or am I?" "Both your Majesty." Such is often the character of the knowledge which we get ready made, and the application we make of it. No doubt examples as ludicrous have been witnessed by some of yourselves. Let me give you one or two, not for the purpose of making sport, but of illustrating the character of knowledge got ready made without bringing the mind to bear upon it. "What is the Equator?" was a question asked of a class in geography not very long ago. "A line perpendicular to itself and called the meridian." In another class the following questions were asked: "What is the difference between the noun 'book' and the book itself?" "What is an abstract noun?" "A collective noun?" To which the following answers were given: "There is no difference." "An abstract noun has no particular calling." "A collective noun is what it wants to make it more complete." In another class the following answers were given to the questions: "What is the circumference?" "Distance round the middle of the outside." "Distance through the middle." "What is the meaning of develop?" "To swallow up." "Give an example." "God sent a whale to develop Jonah." I do not say there are many such cases, I hope there are not, but the existence of any show that knowledge, however accurately it may be given, may be reproduced in a most absurd form, unless the mind is called into exercise. It must not, however, be assumed that when the knowledge is accurately reproduced it is therefore understood by the pupil or of service to him. A long series of questions may be answered correctly and not one of them be understood. The verbal memory of children is very powerful. They can readily remember sounds without attaching any idea to them, and can readily reproduce them.

The teacher has, therefore, frequently to adopt the other method of securing knowledge, viz: through mental exertion. He has to train the pupil to do things for himself, to get his own ideas from things. A physical, mental, or moral act can be done only by performing it. Every one has to do those things which he would acquire the power of doing. You know yourselves that you could never acquire the power of readily solving arithmetical problems without performing the operations yourselves, nor acquire a dexterous movement of hand without performing the acts through which the power is acquired. Now look how nature does. She gives the child no laws, no rules, no principles, no formulas. She simply gives the material, the faculty, and the occasion for its exercise. There is much repetition in her teaching, in order that the difficult may become easy and use become second nature. She does not tell the child but prompts him to action and induces him to think what he is doing. She does not explain to him the difference between hard and soft, or between a hot stove and a cold one, but says, "feel them." Lay your facts, she says, side by side and compare them, find out where they are alike and unlike. Her business is the training of faculty and the development of power.

These two methods of acquiring knowledge may both be successful as respects the knowledge, but their effects upon the mind are very different. When the mind's activity consists in merely comprehending the thoughts of others, the truths which have been discovered and explained, it becomes a receptacle, a working one, it is true, working the nourishment into its own substance, but preparing it only for taking in more and making progress. The method which presents the material to the pupil for observation and re-

* Abridged from the opening address of Principal Crocket of the Provincial Normal School, Fredericton, N.B.

flection, and simply stimulates and directs the mind to an orderly plan of study, trains him to form his own ideas of things, to put forth his own efforts in the acquisition of knowledge. I do not mean to put the one method against the other, for both are necessary in our schools; pupils must have assigned lessons to learn from books, when they are sufficiently advanced to master them, but I do say that the one method is too generally followed to the exclusion of the other. The teacher in too many instances becomes a mere hearer of lessons instead of a trainer.

There is a constantly increasing demand for results of greater commercial value from our school system; and the school must consider the question. If our boys had training in the elements that are common to all industrial pursuits, and our girls training in the principles of domestic economy, all reasonable demands would be met without disturbing the primary aim of the school or increasing the number of subjects in the course.

Such training should embrace industrial knowledge and manual dexterity. Industrial knowledge consists in an acquaintance with industrial materials and processes. Industrial materials are of course the various materials used in the industries consisting of substances from the mineral, vegetable, or animal kingdom. Industrial processes are those operations by which raw materials are converted into forms for our use.

You have seen that we have in the course the subjects that form the elements of industrial knowledge. Instruction is required in minerals, plants, and animals, and their uses. With respect to the processes, a large number relating to the most useful industries are described in our Readers, and these lessons are required to be supplemented by oral instruction. Industrial drawing, the subject of Form, and of Geometry, so far as taught, all bear directly upon many industries.

That they shall result in industrial gain will depend upon the mode of teaching them. Let me give you a few practical hints in the form of some examples.

The subject of Form, which is taught in the first two grades, may be made mainly constructive. During the first year, after the pupil has gained perceptions of the various forms brought under his notice, proceed to construct them of such suitable material as can be conveniently had. The ball, cube, cone and cylinder may be formed of clean moist or moulding sand, or suitable clay. They should be made as accurately as a child can be taught to make them, and considerable pains should be taken to give him the necessary facility of manual movement. During the second year the material should be of a more resisting nature than sand, perhaps pasteboard. As a sample of an exercise, suppose he is required to construct a square whose side is three inches, or any convenient length. Require him to place his ruler upon the piece of pasteboard and mark with his knife along the outer edge. This operation is not so easily done as one might suppose. The ruler has to be correctly applied and firmly held with the left hand, so that it cannot slip and produce a crooked line instead of a straight one. He should also be required to do it with the least amount of waste. He will have to be shown, in the first instance, how to move the ruler as far as possible towards the edge, so that none but the waste parts may be marked off. When this is done he proceeds to cut. His first attempts will be awkward and the line will be imperfectly cut; it will be ragged and probably uneven. He will require to be shown how to steady the pasteboard and how to hold the knife when he cuts. Let him test the accuracy by applying his ruler to the cut. Let it be done again and again, if necessary, but not so often as to discourage him. Let us suppose one side completed.

The second adjacent side is ruled off and completed in the same way. Let him now apply the carpenter's square to test the work (small carpenter's squares can be had for the purpose). He will not only learn the use of this tool, but he will become practically acquainted with a right angle, and his eye will soon detect the slightest deviation from it. The two remaining sides will be constructed in a similar manner and the square completed. There will, no doubt, be many trials and repeated corrections before a fairly accurate square has been made, but the pupil has made substantial gain. He has learned to use a ruler and knife properly, and acquired some manual neatness and dexterity. Exercises may be proposed on the square, by means of which its geometrical properties may be practically understood. They may be further led to find out that the diagonals of a square are not only equal to each other, but bisect each other—truths which they will never forget when taught in this way. If each form is similarly dealt with, the drawings which the pupil makes in his subsequent course will be not only much better executed, but of far deeper interest.

When he has entered upon his course in industrial drawing, the pupil should frequently cut out forms before drawing them, sometimes with scissors as well as with a knife. While studying the elements of geometrical drawing, such as bisecting lines, angles, erecting perpendiculars, etc., he will acquire facility in using the compass. In drawing plans of the school-house, play-ground, etc., of given dimensions, he will become accurate in measuring and accurate in representing measurement.

Arrived at the study of formal geometry, the pupil should, previous to drawing his figures on the blackboard for demonstration, construct them of pasteboard or paper, etc., whenever practicable, and find out the geometrical truths which he is to establish by demonstration. Industrial tools, whose principles depend upon his geometrical truths, should be explained.

In the teaching of arithmetic how many opportunities are afforded of giving a practical character to the work—by associating articles of commerce in the neighbourhood with the questions—requiring the pupils to frame bills of parcels for themselves, and to make them out accurately and neatly! The tables of weights and measures should be determined by experiment and each operation gone through properly, the filling of a gallon or quart from a pint measure, the filling of a pint bottle from a small phial of so many ounces, the measuring of length with a rule or tape line, finding by measurement the content of the play ground, or some other portion of land, all having in view manual dexterity as well as practical knowledge.

Geography, and even History, may be made highly practical as well as powerfully educative. The great natural forces and products which underlie all industries—the industries of a country depending on its products and forces—the interchange of these—and the brotherhood of man, are fitted to awaken and keep alive an interest in industrial work and workers.

Every good citizen of an enlightened country respects the institutions under which he lives, he moves amongst its people, he is protected and governed by its laws. His training towards manhood lies through a knowledge and discharge of his duties as a citizen as well as a workman. How much valuable instruction of a practical character may be imparted and with what interest it will be received, if, instead of loading the pupil's memory with isolated facts little understood and appreciated because they begin and end in themselves, we group together facts that have a bearing upon the great epochs of our history of civil liberty.

A king's reign is not a division of history. Kings die and dynasties, but the great forces move onwards. What are the moving forces? what are the events associated with such forces? Whatever divisions our text books may make it is by some such treatment as I have indicated that we can hope to make history influence character.

It is unnecessary for me to add one word respecting the importance of a study of method and its principles. The whole of this address goes to show that neither the proper aim of the school nor the wants of society can be met unless the work is conducted upon sound principles of method. It is true that some teachers, and more especially young teachers, are apt to pay more regard to the mechanical processes than to the principles of method, and they cannot of course reach satisfactory results; but no intelligent man would on this ground affirm that method tends only to give a mechanical character to teaching. If method is not fitted to lead to great and important results, why should the institutions of the most enlightened countries take practical steps to give a knowledge of it? Two of the Universities of Scotland, Edinburgh and Saint Andrews, have established chairs of education, and the London University has just announced that it will hold a yearly examination in the art, theory, and history of education. Socrates, the Greek philosopher, regarded method as the first thing. Comenius, Locke, Rousseau, Basedow (of whose work Goethe says, "such methods must promote mental activity and give the young a fresher view of the world,") Pestalozzi, Froebel—all insisted upon the importance of method, and Alexander Bain and Herbert Spencer, two of the deepest thinkers of our own day, tell us that all modern systems of instruction must be based upon nature's plan and nature's method.

THE TEACHER'S PROFESSION.

The following article from *The Present Age* will afford Canadian teachers some idea of the status of their *confreres* in parts of the United States :—

We have in this country an army of teachers reaching to its tens of thousands. The work done by these teachers is of more importance to the welfare of the race than that done by the pulpit—for it touches the daily life of the community at a dozen points, where religious teaching touches it at one. The recruits for the work comprise a large proportion of the best intelligence possessed by our young men and women ; and yet no class among us has less influence, no class counts for less outside of the narrow detail of its daily employment.

This is not the fault of the teachers themselves. It is due to the fact that teaching is not a profession among us. It is but a trade, and a poor trade at that—even a poorer trade than the government service. And teaching never can be a profession until our faulty method of appointing teachers is remodeled.

With all our far-reaching system of common schools, our boast of their great advantage to our citizens, no country treats its teachers as shabbily as we do. In other countries they constitute a profession, humble perhaps, and accounted by selfish aristocrats as little above menial service, but still a distinct profession, which can lay down its own rules, and follow them, and cannot be made amenable to any outside criticism ; which can assure its members a safe tenure of office, and thus give them an independence which among us they never could enjoy.

In our country we have an autocracy as irresponsible as any despot, which has it in its power to raise an insuperable bar between the schools and any needed improvement of their methods, between the teacher and any portion of the honor and increased emolument which he may earn. This autocracy is known to us as—school boards.

Who determines upon the teacher's qualifications and his work, his worthiness to take or retain his responsible office? Naturally one would judge that this should be done by a board of teachers, just as a lawyer's attainments are estimated by those who are well skilled in the profession. On the contrary, we find that no such knowledge of the profession is ever so much as thought of in the election of school boards. They are usually chosen for mere political considerations ; if any other reason has any part in their choice it is perhaps one far removed from schools. This board *may* be composed of good, intelligent men, but it is quite as likely that it is made up of unscrupulous politicians. While the chance that even one of their number has any practical knowledge of schools and their needs is so improbable as to partake of the nature of a miracle, should it occur. The members of this board are not likely to be superior to any vulgar idea which may sway the community in which they live ; and sectarian bigotry, prejudice, parsimony, political partisanship, greedy self-seeking anon govern their actions. And what protection has the teacher against the injustice that may thus be worked upon him and others ?

The theory is, that the teacher serves the public. He does not. He serves the will and caprice of a body of men who may be utterly indifferent to the best good of the public. He must look to them in the first place for appointment ; no matter how well fitted for his place, however faithful to the trust reposed in him, he must depend for the retention of his office upon their decision, a decision which may be swayed, as we could adduce instances to prove, by the most unworthy considerations. The teacher is no more able to protect his tenure of office than the postoffice clerks. Here is a field for the civil service reformers to work in, and the sooner they take hold of it, the better.

The natural results follow this mode of administering school government. The best material is duly drawn out of the business. Earning no professional standing, and but poor pay, the brilliant man teaches until he can secure an opening elsewhere, and then is gone. Only those who can do no better elsewhere, will retain a position wherein they can reap no independence and but small advantage from the faithful performance of duty, only those who *must*, will cringe before arrogant school boards to retain their positions. Two primary ideas have governed the administration of school boards, 1st, to get a teacher for the least possible sum ; 2nd, to make him feel that he holds his position by their favor only.

Of what avail is it that this teacher has devised some excellent improvements for his school? The omnipotent board will not allow him to carry them out. Of what good is it that that one has brought his school into most excellent discipline? The autocratic board may dispose of him next week, to make room for a raw recruit, whose father is perhaps mayor or alderman.

The first reform needed to improve our schools is to raise the profession of teaching, and the only way to elevate the profession is to free teachers from this utter and helpless dependence upon unprofessional men, this bondage to outside ignorance.

Matters are not quite so bad in Ontario, but there is even here great room for improvement. Part of the blame must rest on the teachers themselves, however. If they do not learn to regard themselves as members of an honorable profession they cannot expect others to do so. They must respect themselves, respect their fellow teachers, and respect their calling, while they respect also the public whose servants they are. It is satisfactory to notice the tendency in the Education Department to recognize more fully the profession of teaching by requiring all teachers to have a professional training ; if the teachers are true to themselves the rest will come in due time.

THE ENGLISH EDUCATIONAL CODE.

It is a matter of some interest to educationists in Canada to know how schools and schoolmasters are dealt with under the English Education Act. For this reason we reprint from the London *Educational Record* the following summary of the new educational code. It will be seen from it that the principle of "payment by results" receives fuller recognition than before, that greater flexibility has been introduced into the programme, that some relaxation has taken place in the requirements for entrance into the teaching profession, that improvements have been made in the schedules of examination, and that the responsibility of inspectors has been increased rather than diminished. In some respects the tendencies of the English system differ from those of the Ontario system ; time alone can tell how far either is for the best :—

"The New Code makes important modifications in the existing system in respect of

I. The Grant and the mode of estimating it.
II. The Teachers.
III. The Instruction.
IV. The Inspection.

I.—The *grant* has hitherto been computed in a rather complex way. Four shillings per head has been given on average attendance ; a sum of 9*s.* per head on all scholars who, having fulfilled a given number of attendances (250), have passed the standard examination in reading, writing, and arithmetic ; certain other sums paid on average attendance for singing, grammar, geography, needlework, &c. ; and a further sum per head on all scholars who, being in Standard IV., or upwards, have passed an examination in certain specific subjects, *e. g.*, mechanics, animal physiology, &c.

The total grant thus earned has been steadily increasing, and now amounts very nearly to 16*s.* per head on average attendance. At the same time the maximum grant is fixed at 17*s.* 6*d.*, or at one half of the total income of the school from all sources. Hence in Board and other schools in which the cost per head has been large, it has sometimes been possible to claim a grant of 20*s.* or more per head.

The statutory limitation in the amount of the grant (El. Ed. Act, 1876) is of course retained. But (except in regard to the passes in specific subjects, henceforth to be limited to Standard V. and upwards) the whole grant made to a school will be computed on the average attendance, and will be appropriated to the various items of school work as follows :—

	s.	d.
1.—For average attendance only	4	6
2.—For reading, writing, and arithmetic, on individual examination, a sum not exceeding, but computed at 1d. for every per cent. of passes	8	4
3.—For singing ; by ear 6d., or by notes	1	0
4.—For a class subject ; English, if fair 1s., and if good	2	0
5.—For a second class subject ; geography, history, or elementary science. Ditto	2	0
6.—For needlework ; girls only	1	0
7.—For general merit, according to the report of H.M.I., 1s., 2s. or	3	0
	£1	1 10

It has been carefully computed that under this arrangement most schools will obtain pretty nearly the same grant as at present. There is a slight increase in the first item, the unconditional or "steadying" part of the grant, to which the managers of voluntary schools attach so much importance. But at every other item the question of the goodness of the work comes in. The grant on individual examination varies as the numbers who pass; that on class examination, as well as that on singing, varies as the quality of the result; and the new grant for merit takes account of the spirit, order, and intelligence of the school as a whole.

Teachers complained much, and not without reason, that their professional success was too often judged by the percentage of passes in reading, writing and arithmetic, and that this alone was a mechanical and unsatisfactory standard of estimation. No doubt they were often so judged by managers, because this was the only part of the grant variable by results. Every other sum was either given or instituted *en bloc*. There will in future be no temptation to aim at a higher percentage of passes at the expense of other considerations, because the question of quality or merit will come in at every step. Reading, writing, and arithmetic, though still important, will not be the only variable features in determining the grant, and it will be quite possible for a school which passes (say) 80 per cent. in the standard to attain a higher grant than the one which passes (say) 90 per cent., and secures that result by the sacrifice of general intelligence.

II. *The teachers* will find themselves relieved from the onerous and disagreeable task of finding for every scholar a *Child's School Book*, and recording in it every particular concerning his birth, education and progress.

All the trouble connected with the Honour Certificates, and the preparation of a separate schedule for exemption from school fees will disappear

It will be no longer necessary to whip up the attendance on the day of inspection of children who have left school. The examination will be confined to scholars actually in the school at the time, or not more than six weeks before. Much greater liberty of classification will be allowed. Hitherto it has been felt as a grievance that every child who had been presented in one Standard, should be passed up to the next, and that the unavoidable absence of a scholar on the day of examination entailed a loss in the grant. Now a special provision has been inserted to the effect that, although as a rule all children should be thus advanced and presented, exceptions to this rule may be allowed, if duly notified and explained to the Inspector. Greater liberty will also be given in regard to the choice of subjects. The new Code assumes that in regard to all instruction beyond necessary rudiments, that is the best subject, in any given school, which the teacher can teach best. Accordingly the range of choice in class subjects has been somewhat enlarged. Instead of grammar and geography, geography, grammar, and elementary science are offered, of which, under certain conditions, two may be taken.

Moreover, although a course of instruction in geography and elementary science has been laid down for general guidance, a special provision has been inserted that in cases in which the managers and teachers prefer an alternative course, similar in its main purpose but differing from it in detail and in order of development, such a course may be substituted with the sanction of the Inspector. In this way it is hoped that the ablest and most original of the teachers may be encouraged to devise their own methods, and to lead the way to further improvements.

The older teachers, who have through ten years' service obtained good reports, and whose certificates have been raised to the first class, will no longer be subject to the necessity of annual entries on their certificates, but will be entitled to claim from the managers a certified copy of the Inspector's report on their schools. This is a change which has been much desired by teachers, who felt it a grievance that, after long experience, their standing was liable to be seriously injured by a certificate entry made perhaps by a young inspector.

Graduates of universities, and women who may have passed certain university examinations, are admissible as assistants without the formality of an entrance examination. They will be required, however, to pass through the same period of probation, and to pass the same examination, and to give the same proof of practical skill as others before they receive certificates, or will be recognized as competent to take charge of schools.

This will probably have the effect of introducing into elementary schools a very few men and a great many women who have been drawn to the work by preference and aptitude, and have received a liberal education, but who have not been through the usual routine of pupil teachership and normal training.

The new arrangements about Inspectors will also provide for the ablest of the Inspectors' assistants, who are recruited from the ranks of certificated masters, to rise to the rank of Sub-Inspector, a position of greater influence and higher emolument than has ever yet been opened (in the inspection of schools) to certificated teachers.

III. *Instruction.*—The schedules of examination have been carefully re-cast, and the work of the several years better graduated. In reading, the Inspector is to test the intelligence of the children by questions on the meaning of what is read; and one of the books required in the higher standard is to relate to English History. In arithmetic, the order of the subjects is more logical, and in closer harmony with the best modern methods; while special provision is made for the practice of mental or oral arithmetic *pari passu* with written exercises. The class subject "English" is no longer confined to technical grammar, but includes simple and graduated recitation from good authors, with exercises calculated to enlarge the scholar's vocabulary, and to throw light on the meaning, the structure, and the right use of words, as well as on their grammatical relations. Having regard to the fact that other subjects, such as geography and elementary science, are often learned as memory exercises only, and whereas exercises in language are a training in thinking, the regulations prescribe that, although there may be a choice as between geography and science, English shall always be taken as one of the class subjects. The scheme for geography connects the first lessons on physical facts and phenomena with topography and statistics, and and the names and position of places which generally fill the school books, and is carefully framed to encourage children to begin at home and observe the geographical facts of their own neighborhood and county.

The course of lessons on elementary science is purposely left rather vague, as it should differ largely according to the character of different localities and industries, and to the special gifts and knowledge of the teacher. But its general character is indicated in the words, "A progressive course of simple lessons on some of the following topics, adapted to cultivate habits of exact observation, statement, and reasoning," and in directions which show that if any branch of science is intended to be taken up in the higher standards, it ought to be preceded in the lower classes by a series of untechnical lessons on the main facts and phenomena to which that science relates.

In Infant schools there is a special recognition of the importance of the Kindergarten, and yet of its due relation to the scheme of general instruction, in the language of the Code prescribing that in such schools provision shall be made (1) for suitable instruction in the rudiments of reading, writing, and arithmetic, (2) for a course of simple lessons on objects, and on the phenomena of nature and of common life, and (3) for appropriate and varied occupations for the little ones.

On the whole, the effect contemplated by these proposals is to retain every security afforded by the existing system for exactness and thoroughness in elementary instruction, and at the same time to encourage less mechanical and more intelligent teaching, and to have regard to the quality of the instruction and discipline, as well as to the number of scholars who can come up to a given mechanical test. It is hoped that the results may in future be weighed as well as counted. The Standard examination in reading, writing, and arithmetic, and the record of individual passes, introduced by Mr. Lowe, will be retained, as experience has proved it to be a real safeguard against careless teaching and superficial inspection. And, considering the fact that to the child of the labouring man passing in the standard allowed by law for total or partial exemption from school attendance is a matter of serious importance, a substantial part of the grant is still dependent on the percentage of passes, and is especially designed to encourage teachers in the effort to bring as many scholars as possible up to the simple requirements of the legal standards. But the merit grant will enable Inspectors to discriminate between schools in which this result is achieved by enabling a number of scholars barely to pass, and those in which scholars pass with ease and credit. And in recommending further grants for class subjects, the Inspector, who has hitherto had no alternative but to grant for grammar, geography, and history, the whole sum or none, will now have a third and most useful alternative. He will have to report *how* the subjects have been taught. If well, the whole grant will be awarded, and if only fairly, one half the grant.

IV. *Inspectors.*—All these changes impose new and grave responsibilities upon Inspectors, and presuppose a critical insight into the heart and spirit of the schoolwork, which though often most beneficially exercised by individual Inspectors, has hitherto had little recognised influence in determining the amount of the grant. It will thus become more necessary than ever that there should be unity and concert among Inspectors as to the way in which discretion shall be exercised, and the principles on which certain requirements shall be interpreted. Accordingly special provision has been made (though by departmental regulation and not in the Code itself) for reorganising the Inspecting Staff, and for bringing the senior Inspectors into annual council, and for enabling the Inspectors of the various districts to compare experience and to resolve on some tolerably uniform rules of action. It is evidently not desired by these arrangements to eliminate the special methods of Inspectors or diminish their independence, but only to guard against reasonable complaints of injustic and caprice.

"I congratulate you," said president Concard to the teachers of Arkansas, "upon the superiority of the text-books now put into the hands of pupils—superior in style and finish; containing more matter and more valuable matter; higher in their aim and purpose; tending rather to develop than to fill; encouraging the pupil to think for himself, and leading him to question further upon all that he sees and hears."

Examination Questions.

JULY EXAMINATIONS, 1882.

FIRST CLASS TEACHERS—GRADES A AND B.

ELEMENTARY GEOMETICAL OPTICS.

TIME—TWO HOURS.

1. Give a concise non-mathematical description of what takes place when a divergent pencil of light falls upon :
(*a*) A plane mirror,
(*b*) A concave mirror, the origin of the pencil being in the axils,
(*c*) A convex mirror under condition as in case (*b*),
(*d*) A thick transparent plate of glass.

2. Two plane mirrors are inclined to one another at an angle e; investigate an expression for the deviation of the ray after successive reflection at the surface of each mirror.

In what instruments is this principle of reflexion employed?

3. If a ray of light meet a prism and leave it at the same angle, (ϕ), and if μ be the index of refraction and e the angle of the prism,

$$\sin\phi=\mu\sin\frac{e}{2},$$

and if δ be the deviation of the ray,

$$\mu=\sin\frac{\delta}{2}\left(\cot\frac{e}{2}+\cot\frac{\delta}{2}\right).$$

4. A prism whose section is an equilateral triangle is to be employed for producing total reflexion without refraction.

Determine the lowest allowable index of refraction for the substance forming the prism.

5. The object glass of a microscope consists of two convex lenses separated by an interval of two inches. The local length of the first lens is 3 inches, and of the second 8 inches, and an object one-tenth of an inch in length is placed 4 inches in front of the first lens. Determine the position and size of the image.

6. While looking at the page of a book from a distance of 12 inches, I place a plate of glass ($\mu=1.5$) upon the page. How does that affect the appearance of the print, and to what extent?

7. Explain the following terms employed in relation to telescopes :—Objective, Ocular, Positive Eyepiece, Negative Eyepiece, Amplifying Lens, Diaphragm, and state the purpose of each.

8. How much shorter would a Cassegrain's telescope be than a Gregorian, if in each the focal length of the great speculum were 4 feet, that of the eyepiece 2 inches, and if the magnifying power were 100?

ANALYTICAL GEOMETRY.

1. Shew that the general equation $Ax+By+C=0$ represents a straight line.

Determine its intercepts on the axes, the angles it makes with the axes, and the length of the perpendicular on it from the origin (axes rectangular).

2. Obtain a general expression for all lines passing through the intersection of

$$\begin{cases} Ax+By+C=0 \\ A'x+B'y+C=0 \end{cases}$$

and deduce from it the equations to (1) that which passes through the origin, and (2) that which is parallel to Ox.

3. Find the area of a triangle the co-ordinates of whose angular points are given, and thence show that all triangles on the same base and of equal area are between the same parallels.

4. Show that the equation

$$x^2+y^2+2Ax+2By+C=0$$

represents a circle; and determine the constants in it that it may be touched by the co-ordinate axes and by

$$\frac{x}{a}+\frac{y}{b}-1=0.$$

5. Classify the curves

(1). $2x^2-3y^2+xy+5y-2=0.$
(2). $x^2+2y^2-3xy-x+4y+1=0.$

6. If $\alpha=0$, $\beta=0$, $\gamma=0$, $\delta=0$ be the equations to four straight lines, interpret the equations

(1). $\alpha\beta+\gamma\delta=0$
(2). $\alpha\beta+\gamma^2=0$
(3). $\alpha^2+\gamma^2=0.$

7. Find the tangent to the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ at the point (x',y'); and interpret your resulting equation when the point (x', y') is within or without the ellipse.

8. In an ellipse, centre C, Z is the foot of the perpendicular from the focus H on the tangent P; shew that if R be the bisection of HP, then ZR, RC are in the same straight line.

9. Obtain the equation to the tangent to the conic

$$\frac{c}{\zeta}=1+e\cos\theta \text{ in the form } \frac{c}{\zeta}=e\cos\theta+\cos(\theta-a);$$

and if $PT, P'T$ be tangents at P, P', and F be the focus, then FT bisects the angle PFP'.

10. A circle through the foci of an ellipse and the point N on the axis minor, cuts the axis minor again in T and the ellipse in P. Shew that PT, PN are tangent and normal to the ellipse.

ALGEBRA.

TIME—TWO HOURS AND A HALF.

1. If $a^2py+b^2x=a^2qy^3+b^4=(y-\beta)q+1+p^2=(a-x)q+(1+p^2)p=a^2y^2+b^2(x^2-a^2)=0$, eliminate p, q, x and y, and obtain an equation involving the remaining quantities.

2. Show that the determinant

$$\begin{vmatrix} a\,b\,c \\ a'b'c' \\ a''b''c'' \end{vmatrix}=\frac{1}{b'}\left\{\begin{vmatrix} a\,b \\ a'b' \end{vmatrix}\circ\begin{vmatrix} b'c' \\ b''c'' \end{vmatrix}-\begin{vmatrix} a'b' \\ a''b'' \end{vmatrix}\circ\begin{vmatrix} b\,c \\ b'c' \end{vmatrix}\right\},$$

and that the second form becomes indeterminate when b' becomes zero.

Evaluate the determinants—

$$\begin{vmatrix} 4 & 3 & 2 & 3 \\ 6 & 5 & 3 & 4 \\ 4 & 7 & 4 & 1 \\ 6 & 5 & 1 & 2 \end{vmatrix} \text{ and } \begin{vmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & z^2 & y^2 \\ 1 & z^2 & 0 & x^2 \\ 1 & y^2 & x^2 & 0 \end{vmatrix}$$

3. Find an expression for the sum of n terms of the series

$$2+22+222+2222+\ldots$$

4. Revert the series,

$$y=1+\left(\frac{x}{2}\right)+\frac{3}{1.2}\left(\frac{x}{2}\right)^2+\frac{3.5}{1.2.3}\left(\frac{x}{2}\right)^3+\ldots$$

and thence show that when $y=\frac{1}{2}$, $x=-3$.

5. If a, b, c, d be four consecutive terms of a series in which the fourth differences are approximately zero, show that the value of m, a term interpolated midway between a and b, is expressed by

$$\frac{1}{16}(5a+15b+d-5c).$$

6. Resolve $\frac{2}{(1+x-x^2)(1-x^2)}$ into its partial fractions.

7. If in the expansion of $(1+x)^n$ the co-efficients after the first term be denoted by n_1, n_2, n_3, &c., and if p_1, p_2, p_3, &c., denote like functions of p, an integer less than n, show by the expansion of $(1-x)^{-n}$ that when n is a whole number,

$$\frac{\lfloor n+p}{\lfloor n-1 \lfloor p+1}=n_1+n_2p_1+n_3p_2+\ldots n_{p+1}p_p.$$

8. Express $\sqrt{13}$ as a continued fraction and obtain the first five convergents.

9. A debenture pays interest n times a year at R per cent. per annum, and runs for t years. It is to be sold so as to yield the purchaser r per cent. upon his investment. Investigate a formula for its present value, all interest being compound.

10. Develope a^x according to ascending powers of x, and explain the meaning of the constant co-efficient of x.

TRIGONOMETRY.

TIME—TWO HOURS AND A HALF.

1. State clearly what is meant by the terms *sine* and *tangent*, and write the value of each of these in terms of all the remaining goniometrical ratios.

2. Prove the following formulae :—

(*a*) $\text{Cos}(A+B)=\cos A\cos B-\sin A\sin B.$

(*b*) $\text{Sin}\ \frac{A}{2}=\frac{1}{2}(\sqrt{1+\sin A}-\sqrt{1-\sin A}.)$

(*c*) $\text{Tan}\ \frac{A}{2}=\sqrt{\frac{1-\cos A}{1+\cos A}}.$

(d) $\triangle = Rr(\sin A + \sin B + \sin C)$,
where $\triangle$ is the area of a triangle whose angles are A, B, C, and the radii of whose circumscribed and inscribed circles are respectively R and r.

3. From the isosceles triangle having its basal angle double its vertical one find surd values for sine and cosine of 18° and of 54°.

4. In travelling over a distance of 13 miles directly northward, the stars are observed to have changed their meridian altitudes by 11′22″.6. From these data calculate the earth's diameter.

5. Determine θ from the equation—

$$\text{Cos } 5\,\theta + \cos 3\,\theta + \cos\theta = 0.$$

6. Put into a form adapted to logarithmic computation, the equation—

$$\text{Cos } a = \cos b \cos c + \sin b \sin c \cos A.$$

7. Divide the angle whose tangent is $\frac{1}{10}$ into two angles whose tangents are each expressed by a simple fraction with unity in the numerator.

8. If p be the perimeter of a regular polygon inscribed in a circle whose diameter is 1, and θ half the angle subtended at the centre by one of the sides—

$$\pi = p \sec\frac{\theta}{2} \cdot \sec\frac{\theta}{4} \cdot \sec\frac{\theta}{8} \ldots\ldots \text{ad. inf.}$$

9. If the angle ϕ is given by the condition $\cos\phi = a$, then $\frac{\phi}{n}$ has n values. Explain this for any value of n greater than 2, and show what use is made of it when $n=3$.

10. Through the centre of an equilateral triangle a line is drawn making an agle θ with the side BC, and cutting the other sides in points X and Y.

If s be the side of the triangle, investigate an expression for the product $AX.AY$ in terms of s and θ.

DYNAMICS.

TIME—TWO HOURS AND A HALF.

1. A certain acceleration is represented by 32 when one foot and one second are the units of space and time. By what number will it be represented when 4 inches and 3 seconds are the units?

2. Obtain a formula for finding the space described in a given time by a body moving with given uniform velocity.

A body projected in the direction of a uniform acceleration describes a and b feet in the mth and nth seconds respectively. Find the space described in n-m seconds.

3. State Newton's Laws of Motion, giving illustrations of the third.

Explain the use of Atwood's machine in finding the acceleration due to gravity.

4. Find the work done in the following cases :—
   (1). Raising a body of given weight to a given height along a rough inclined plane (coeff. of friction μ) whose inclination is known.
   (2). Raising a window-blind of given dimensions and weight by means of a roller at its top.

5. When a particle is projected *in vacuo* at any inclination to the horizon, and subject only to the influence of gravity, its path is a parabola.

Shew also that the velocity at any point is the same as that acquired in falling freely from the directrix to that point.

6. If a particle be projected with velocity u and inclined at an angle a to the horizon, and at the same instant another particle be dropped from a point in the directrix of the parabolic path of the former find where in the direction this point must be situated, that the particles may collide.

7. A string of length 4 feet and capable of supporting a weight of 10 lbs., has attached to one end a weight of 3 lbs., and is whirled in a horizontal circle. Find the angular velocity of the string when it breaks.

8. An elastic particle impinges on a fixed surface; obtain equatio..s for determining its motion after impact.

One end of a smooth tube is at a given height above a horizontal plane on which the other end rests. An elastic particle descending the tube rebounds from the plane; shew that its *range* is greatest when the inclination of the tube to the horizon is $\tan^{-1}\frac{1}{e}$

9. When bodies are in motion subject only to their mutual action, the velocity of their centre of gravity is uniform.

PAPERS SUITABLE FOR INTERMEDIATE EXAMINATIONS.

ENGLISH LITERATURE.

(*Goldsmith's Traveller.*)

1. Give a sketch of the life of Dr. Goldsmith, referring especially to the incidents which gave origin to the "Traveller,"

2. Mention his more important works, classifying them under such heads as history, drama, fiction, &c.

3. Explain the following :—
   (a) A lengthening chain.
   (b) These rocks by custom turn to beds of down.
   (c) The pregnant quarry teemed with human form.
   (d) The pasteboard triumph.
   (e) Force a churlish soil.
   (f) Their level life is but a smouldering fire.
   (g) Their morals, like their pleasures, are but few.
   (h) Skilled in gestic lore.
   (i) Ostentation here, with tawdry art,
   Pants for the vulgar praise which fools impart.
   (j) Thus polluting honor in its source.

4. What people or country does he refer to in the following :—
   (a) They please, are pleased, they give to get esteem,
   Till, seeming blest, they grow to what they seem.
   (b) At gold's superior charms all freedom flies;
   The needy sell it, and the rich man buys;
   A land of tyrants, and a den of slaves.
   (c) While sea-born gales their gelid wings expand
   To winnow fragrance round the smiling land.
   (d) For, as refinement stops, from sire to son,
   Unaltered, unimproved, the manners run;
   And love's and friendship's finely-pointed dart
   Fall, blunted, from each indurated heart.
   (e) There, all around, the gentlest breezes stray;
   There gentlest music melts on every spray;
   Creation's mildest charms are there combined:
   Extremes are only in the master's mind.

5. Quote the following passages :—
   (a) The simile by which he illustrates the love of the Swiss for their homes.
   (b) The simile by which he likens his wasted life to the horizon.
   (c) The passage in which he shows that the patriot always regards 'his first best country ever is at home.'
   (d) Any passage wherein he gives his opinions about the injurious effects of commerce.

6. Point out the figures in the following passages :—
   (a) Blest that abode, where want and pain repair.
   (b) With patient angle trolls the finny deep.
   (c) Fired at the sound, my genius spreads her wing.
   (d) Dull as their lakes that slumber in the storm.
   (e) Hence all the good from opulence that springs,
   With all those ills superfluous treasure brings,
   Are here displayed.

7. Blest be the spot, where cheerful guests retire
   To pause from toil, and trim their evening fire.
   (a) What kind of sentence is this?
   (b) Analyze it in full and parse 'be.'
   (c) What kind of an infinitive is 'to pause?' Expand it into a clause.

8. I sit me down a pensive hour to spend.
   Explain the use of 'me.' Is this the usual construction now? If not, what is it?

9. Onward, methinks, and diligently slow,
   The firm connected bulwark seems to grow.
   (a) Explain 'methinks' and give its etymology.
   (b) Analyze in full.
   (c) 'Diligently slow;' what figure?

10. (a) To whom is this poem dedicated?
    (b) In what metre is it written? Give the names of other poems written in the same measure.

11. Vain, very vain, my weary search to find
    That bliss which only centres in the mind.
    Why have I strayed from pleasure and repose,
    To seek a good each government bestows?
    In every government, tho' terrors reign,
    Though tyrant kings or tyrant laws restrain,
    How small, of all that human hearts endure,
    That part which laws or kings can cause or cure.

(*a*) Where has Goldsmith been trying to find that bliss which only centres in the mind?
(*b*) Why does he think laws and kings play a very small part in human happiness?
(*c*) What is your idea as to one form of government being as conducive to human happiness as another?
(*d*) Point out all the figures, classifying each as a figure of etymology, of syntax, or of rhetoric.

PAPERS SUITABLE FOR HIGH SCHOOL ENTRANCE EXAMINATIONS.

HISTORY.

1. (*a*) Name the different Houses that have ruled England between 1100 and the present time.
(*b*) Name the five most noted kings between 827 and 1066.
2. Give the name of the first monarch of each House and the date of his commencing to reign.
3. In what reign in English History do we find almost uninterrupted peace? What was the reason?
4. (*a*) Has the reign of Queen Victoria been peaceful?
(*b*) Prove your answer to be correct.
5. (*a*) What monarchs of England knew anything about railways, steam-boats, telegraphs, telephones.
(*b*) Give a reason for each answer.
6. Did Henry IV. know anything about printing? Why?
7. (*a*) Name the great political parties in Charles I's. reign; in Anne's reign; in Victoria's reign.
(*b*) What points of difference can you draw between them?
8. (*a*) What American towns did the British or Canadians burn in the War of 1812?
(*b*) What Canadian town did Americans burn in the same war?
(*c*) In what battle of this war and in what year was each of the following men killed: Brock, Tecumseh.
(*d*) Relate the Affair of the Chesapeake and Shannon.
9. (*a*) What caused the rebellion of 1837?
(*b*) Who were the chief leaders of the rebellion?
(*c*) What battles were fought in 1837–8?
(*d*) Locate each of the above battle fields.
(*e*) Name the chief battles of 1812–13–14.
10. Which were the first settlements in Quebec? Which the first in Ontario? Which the first in Nova Scotia?
11. Name the most important event in each reign of the House of Hanover.
12. Which do you consider the two most important events in the sixteenth century?
13. Arrange the following names according to the times in which they flourished, beginning with the one nearest our own time and ending with the one most remote, Cobden, Becket, Gladstone, Wm. Lyon Mackenzie, Cromwell, Chatham, Marlborough, Newton, Wellington, Shakespeare, Bede, Milton.
Values:—1, 6; 2, 5; 3, 4; 4, 6; 5, 10; 6, 5; 7, 6; 8, 8; 9, 16; 10, 9; 11, 6; 12, 4; 13, 12.

LITERATURE.

FOURTH BOOK.

1. Explain each of the following terms: 'Gospel dispensation,' 'attempt to conjecture,' 'sitting abaft,' 'a bleak stretch of rocks looming through the fog,' 'received with every demonstration of joy,' 'kept the great king at bay,' 'Gibraltar was formally, but reluctantly ceded to England.'
2. From what lessons are the passages in question 1 taken?
3. (*a*) Who was the conqueror of Wales?
(*b*) Who was the conqueror of Mexico?
(*c*) Who was the conqueror of Peru?
4. Give the dates of the above conquests.
5. Name the discoverer of Canada, of America, of the Pacific Ocean, of the Mississippi, of Newfoundland.
6. What is told in the Fourth Book about each of the following men: Sir Humphrey Gilbert, Sir George Rooke, Sir Walter Raleigh, Napoleon, Xerxes, Hermann, Leonidas?
7. Name the chief works of the following writers: Scoresby, Robertson, Hawkins, Humboldt, White.
8. (*a*) Which of the lessons did Jerrer write?
(*b*) Which one did Segur write?
(*c*) Tell what you know about Segur?
9. Give dates for each of the following: Destructfon of Pompeii, Battle of Thermopylæ, Battle of Hermann.
10. Tell all you know of Cassel.
11. (*a*) Who was the last native ruler of Mexico?
(*b*) Who was the last native ruler of Peru?
(*c*) Who was the last native ruler of Wales?
12. Give, in your own words, a description of the earthquake at Caraccas.
13. Show that you have studied the account of the burning of Moscow by answering the following questions: In what year did it occur? Who were the incendiaries? What was their object in burning it? How is Moscow situated? What calamities attended the burning? What calamities followed the burning? Who was Emperor of France at this time? Who was Czar of Russia?
14. Write brief notes upon Longfellow and Gray.
Values—1, 7; 2, 7; 3, 3; 4, 3; 5, 5; 6, 14; 7, 10; 8, 6; 9, 6; 10, 3; 11, 6; 12, 8; 13, 16; 14, 6.

GEOGRAPHY.

1. Name ten railways in Ontario and give the termini of each.
2. Name the principal canals of Quebec and Ontario; tell what each of them connects, and also the necessity for each.
3. Name the counties in Ontario that do not touch any of the great lakes.
4. What connects Lake Huron with Lake Superior, Lake Huron with Lake Michigan, Lake Nipissing with Georgian Bay, Sea of Azov with Black Sea, Baffin's Bay with Artic Ocean, Irish Sea with Atlantic Ocean?
5. What separates Cape Breton from Nova Scotia, Vancouver Island from British Columbia, Newfoundland from Labrador, Japan from Asia, Cuba from Florida, Tasmania from Australia, Arabia from Egypt, Sicily from Italy, Denmark from Norway, from Sweden, England from France, Scotland from Ireland?
6. Name at least two rivers that empty into each of the following brdies of water:—Gulf of Carpentaria, Bay of Bengal, Gulf of Mexico, Irish Sea, Black Sea, James' Bay, Gulf of California, Caspian Sea.
7. Name what you think is the chief range of mountains in each of the following countries:—Austria, Mongolia, Madagascar, Cuba, Quebec, Mexico, Morocco, Australia, Nova Scotia, France, England, Spain.
8. (*a*) Draw a map of Hindostan and put upon it its five chief cities, four rivers, two capes, and two chains of mountains.
(*b*) Write a list of the productions of Hindostan.
(*c*) What systems of religions flourish there?
9. Name the principal islands in each of the following groups:—West Indies, Japan, New Zealand, Philippine.
10. Where do we in Canada obtain tea, coffee, currants, nutmegs, salt, petroleum, coal, oranges?
11. Write a short description of Manitoba. Name its counties, principal towns, largest rivers and lakes, and give a clear idea of its physical features.
12. Where are the following:—St. John, Youcan, Benin, Callao, Cyprus, Dollart, Formosa, Hochelaga. Sackville, Portsmouth, Jura, Don, Whale, Rio Janeiro, Bogota, Dantzic.
Values:—1, 10; 2, 10; 3, 8; 4, 6; 5, 12; 6, 8; 7, 12; 8, 13; 9, 8; 10, 8; 11, 8; 12, 16.

Practical Department.

HINTS ON TEACHING SPELLING.

When should pupils begin to spell? There should be no oral spelling, or written spelling either, from memory during the first year and a half or two years of school life; yet pupils should be learning to spell from the start. How? By copying in script well-written sentences set by the teacher on the board.

Sometimes these sentences may be taken from the primer, but they should generally be the language of the pupils themselves, including certain words given by the teacher.

Assigning Spelling Lessons.—The teacher should not merely say, "Prepare the tenth lesson," or "Your dictation will be the first twelve lines on page twenty-four." The pupils should pronounce after the teacher the words of the lesson, looking at them carefully

as they do so. Peculiar or difficult words should be written on the black board and spelled simultaneously by the pupils, and hints should be given to aid in the preparation of the lesson.

Preparing Spelling Lessons.—We wish to teach the forms of the words, not their sounds. Unfortunately, forms of the words do not always agree with the sounds in English; hence the form of a word must be impressed on the mind through the eye and not through the ear. It is perfectly clear, therefore, that the art of making good spellers consists in teaching pupils to see words accurately. The London *Times* once said, "Spelling is learned by reading, and nothing, but reading, can teach spelling." It may be accepted as a rule that a good reader is always a good speller. These facts all point the thoughtful teacher to the conclusion that we have already stated—spelling depends upon the power of seeing with precision. It follows that the exercise which compels the pupils to look most carefully at words must be the best method of preparing a spelling lesson. Unquestionably, this exercise is transcription. Let the pupils copy on their slates the lesson to be prepared. The lesson may be prepared as a home exercise, if due care be taken by the teacher in examining both writing and spelling. This is necessary in order to compel scrutinizing attention to the words to be copied. The whole value of the exercise depends on this being done.

Repeating the letters of a word orally is of little benefit. Make the pupils see the words, and, if possible, never let a pupil see a word wrongly spelled.

Testing Spelling Lessons.—There are only two methods, oral and written. The oral method alone is of very little practical value. An American writer records the case of a young man "who won three prizes at spelling-schools, but made five mistakes in spelling in a note written to a school board." Oral spelling does not accustom the eye to the form of the word in writing. This is a fatal objection to it, and all modern teachers recommend that spelling lessons be conducted chiefly in writing.

Correcting Spelling Lessons.—They must be corrected thoroughly. If proper preparations have been made as recommended, very few errors will be made. In a large class the teacher will not be able to examine personally the book or slate of each pupil, except in the case of review lessons consisting of words previously misspelled in the class. These should always be examined by the teacher. In other lessons, one of the following plans may be adopted:

1. The pupils exchange slates, and the teacher gives the correct spelling, word by word, the pupils marking those that are wrong.

2. Pupils retain their own slates, and the different pupils are called on to spell the words. Those agreeing with the spelling indicate it by raising the hand before the teacher decides as to its correctness. Marking as before.

3. Slates are exchanged, and the corrections made as in No. 2.

While the teacher writes the correct spelling on the board, each pupil may correct his own work, and slates and books be exchanged for revision only. The latter method is probably the best with honest pupils.

In all cases where slates are exchanged, the pupil owning the slate should have the right to appeal against the marking done by his neighbor.

Reviews.—Each pupil should write correctly the words which he misses, about five times, to impress the correct forms on his mind. In addition to this, he ought to make a list at the end of his book of all the errors he makes. From this list the teacher should prepare his reviews. The words missed are the only words that need to be taught. "Leave no enemy in the rear." Review regularly.

General Suggestions.—1. The teacher should always articulate clearly and pronounce correctly when giving words for spelling.

2. Never overstrain the enunciation of a word in order to indicate its spelling.

3. Allow only one trial in spelling orally or in writing.

4. In spelling orally, the divisions into syllables should be marked by slight pauses, but in no other way.

5. Do not assign lessons too difficult for the pupils who have to prepare them. This compels the pupils to spell badly.

6. It is desirable that spelling should be taught to a considerable extent by means of composition, in order to give the pupils practice in spelling the words in their own vocabularies.

7. In some of the dictation lessons, time may be saved by having only the words in italics spelled. The teacher should read the whole sentence and emphasize the word to be spelled.—*Educational Journal of Virginia.*

SCHOOL-ROOM SKETCHES.

In a visit to one of the up-town schools, the principal related the following incident:

I went into one of the class-rooms on one occasion, when the teacher called up one of the pupils and said to me. "I wish you would take him out of my class. I can do nothing with him."

I looked at the little fellow who stood quietly looking down at the floor, and I said "Why, what's the matter? Is he so very bad? Don't you think you can do something with him?"

"No! nothing at all. There is nothing good in him. I can't make anything of him. He is all bad."

"What! all bad! Oh, I hope not!" and turning to the boy I said. "Look up at me. This is a very bad report your teacher gives. What shall we do? I think there is something good in you. Now, I would like to see some of the good boys."

The teacher called some five or six of them, and they stood up, and told one of them to step forward, which he did. I looked at him, and then at the culprit, and I said. "I think we can find *something* good in him. He's not all bad."

I looked at the good boy from head to foot. His shoes were dirty, and had no "shine" on them. I looked at the little fellow before me, and saw that his shoes were clean, with an attempt at a polish, which struck me as a point. So I said;

"Here's something good right away. Harry is a good boy, but he forgot to clean his shoes. But here's Jimmy, that has his shoes clean. Who cleaned your shoes, Jimmy?"

"I did it myself, sir?"

"Who put it into your head?"

"Nobody, sir. I did it myself."

"Now, then, boys," said I, here's something good in Jimmy. He's not *all* bad—not quite so bad. Here's one good thing to start with—I think we can find some more good things. Jimmy, would you rather be a bad boy or a good boy?"

"I'd rather be a good, sir!"

"Would you really—now? Stop and think about it. Would you *really* rather be a good boy than a bad?"

"Yes, sir."

"Well now, we have *two* good things. He tries to keep clean, all of himself, and he would *rather* be good than bad. I think we can try him. Will you try, Jimmy?"

"Yes, sir?"

"Well, then, boys, shall we try Jimmy a little longer, before we put him out of the class?"

To which all the boys and the teacher answered with a hearty, "Yes sir!" and the little fellow went to his seat with the sympathy of his classmates, and my own.

"By the way," said the Principal, "you know I never want to do anything to make my scholars lose their self-respect. For that reason I never allow my teachers to report a scholar publicly before their classes. I try to keep these things as much between the teachers and myself as possible, and I endeavour to have the scholars feel that they are responsible for their own character and the good character of the class. As the complaint in this case was made in the presence of the whole class, I tried to make the best use of it I could."

"More than a year has passed by, and I do not recollect having had Jimmy under my personal reproof since that time."

I could not help admiring the tact as well as the moral insight of that principal, and I went away from the school earnestly wishing him a thousand blessings upon his work.

A LANGUAGE LESSON.*

EXERCISE I.

(Can you read this piece right off so as to make sense? Can you rewrite it and spell all the words as they should be?)

A rite suite little buoy, the sun of a grate kernel, with a rough around his neck, flue up the rode as quick as a dear. After a thyme he stopped at a gneu house and wrung the belle. His tow hurt hymn, and he kneaded wrest. He was two tired to raze his fare, pail face. A feint mown of pane rows from his lips.

The made who herd the belle was about to pair a pare, but she through it down and ran with all her mite, for fear her guessed wood not weight. But when she saw the little won, tiers stood in her eyes at the site.

"Ewe poor dear! Why doo you lye hear? Are you dying?"

"Know," he said, "I am feint."

She boar hymn inn her alms, as she aught, too a room where he mite be quite, gave him bred and meet, held a cent-bottle under his knows, untide his cholor, rapped hymn up warmly, and gave him a suite drachm from a viol, till at last he went fourth as hail as a young hoarse.

HINTS.

First distribute the slip and let the class look at the exercise in silence a few minutes. Watch the faces to see in how many the "light" begins to shine. After a sufficient time, say: "Well, Mary, what is the matter with this piece?" After she has told, "How many can correct any word in the first sentence? Well, John, what word?" So let them correct all they can in the first sentence. They may not be able to correct *suite* and *buoy*. If not, help them. So go through each sentence as far as the time of the recitation will permit. Let them take the slips home with them, and prepare the remainder of the exercise for the next recitation, and also write out the whole piece as it ought to be. Be careful to have them distinguish between the pronunciation of *alms* and *arms*, *quite* and *quiet*, *hoarse* and *horse*.

EXERCISE II.

(*Rewrite this story leaving out all the needless words and expressions.*)

On a large dairy farm where a great many cows were kept the churning of the butter was done by a tread-mill worked (squirrel-cage fashion) by two animals, a dog and a sheep. The dog, "Bruce," hated the work, and did not like to do it; and when churning-day came around he would run away and go off and hide himself so that he could not be found. At last he did it so much they were obliged to keep him shut up and confined in some place or other. The sheep, perhaps, learned from the dog the trick of running away and hiding on churning-day, but she was quite as shrewd at it as he was.

The dog and the sheep churned by turns on alternate days, thus Bruce worked the churn Mondays, Wednesdays, and Fridays. Old Sheepy worked the other remaining three days of the six. On Tuesday, Thursday, and Saturday mornings, when her turn came, Old Sheepy could never be found without much hunting for her where she used to hide. The other three mornings when she had nothing to do she would stay in the yard and feed on the grass near the house. So John was obliged to drive her into an enclosure where she could not get out, and there confine her for all the night previous to her churning-day, as it took too much time to hunt for her and find her in the morning.

On Monday evening Bruce, having done his day's work at the churn, was taking it easy lying on the rug in the sitting-room where the farmer's family were having a quiet friendly chat. At eigh o'clock some one spoke up and asked, "Has any one shut up Old Sheepy?"

No one knew. So off John ran to get the animal, but soon returned back again, not able to find her.

"No matter," said Mary, "Bruce has had it easy to-day, as he has not worked hard. We'll put him on to-morrow; for we never had on hand more cream ready to be churned than now."

Bruce pricked up his ears as if to say, "Catch me churning Old Sheepy's butter."

When bed-time came, and the folks were getting ready to retire and go to bed, Mary said, "I will not let old Bruce out to-night. I will put him in the wash-room."

Mary did not quite know Bruce, if she thought he was silly and simple enough to be caught napping after hearing her first remark, which she had made some time before. Bruce had slipped out of the sitting-room somehow, and there was nothing to be done but to wait until morning, and hunt him up.

At midnight a great noise was heard near the house. John got up and went out to see what was the matter out there. He found that Bruce had hunted up Old Sheepy in her hiding-place, and had driven her into the enclosure to have her ready for her churning work the next Tuesday morning.

HINTS.

Distribute the leaf and give the class time enough to read the exercise clear through. "There are some useless words used in telling that story, are there not, Willie?" Willie will probably say, "Yes." Put him right to the proof. If you have trained him aright he did not say "Yes," without having in mind some sentence or sentences that might be shortened. If he did not actually have in mind an instance of redundancy, he would say to your question, "I did not see any words that seem to me useless." If he says the latter, congratulate yourself on having a thoughtful boy. If he says "Yes," say, "Show us a place, Willie, where some of the words might be left out." If he fails to point out such a place, try to impress him with the idea that he ought not to have said "Yes;" that the right way for us to do is not to assent to anything until we understand it and see clearly that it is so.

If Willie fails to find a redundancy, ask, "Who sees a place in which some of the words are of no use?" It seems better to go at the lesson this way rather than to begin with the first sentence, and so in order, for this reason:—You wish to get clear, independent action on the part of the children. It is quite likely that there are redundancies elsewhere which will catch their attention more quickly than those in the first line. At any rate by letting a child announce what he has discovered by himself you give him greater independence and self-confidence, and an inspiration born of success which will make him quicker and sharper in detecting other places to be improved. So for the first recitation we would take whatever criticism they offer. Pay no regard to system. It is easier to arouse mental activity in this way. As soon as you have evidence that all the criticisms have been made which are likely to be volunteered, it is time to begin at the first sentence, and correct the errors as you go.

Do not forget that it is the development of the child's thoughtfulness that you are to aim at. The amendment of the story is entirely subordinate; it is only a means. So be sure that your pupils see clearly why this or that word or phrase can be left out. Get them to tell you that "a large dairy farm," means "a farm where a great many cows are kept," and so the last clause may be omitted. Get them to tell you that on a farm nothing else is churned except the butter (or the milk) and that therefore there is no need of saying "the churning *of the butter*." Get them to tell you that it would be as well to say "worked by a dog and a sheep," as to put in "two animals." Now try them and see if they do not think the parenthesis is superfluous Then make them see that it is helpful in giving clearness to the thought. If it had simply said "a tread-mill" how many of them would have known what was meant? How many get the idea from the "squirrel-cage?" "Now let us have the sentence written the way it ought to be,—'On a large dairy-farm the churning was done by a tread-mill worked (squirrel-cage fashion) by a dog and a sheep.'" Make them see that the whole thought is expressed by that sentence. The opportunities of arousing thought, of bringing common-sense into play in this lesson are almost inexhaustible. Of course, in many places the only question is a question of taste. When such is the case it is usually better to cut the matter short rather than waste time in trying to get your pupils to arrive at what they are not yet mature enough to appreciate.

*Adapted from an article in the Chicago *Schoolmaster*.

Put into its best form by simply making omissions in it as it now stands the story will read somewhat thus:

On a large dairy farm.....the churning.....was done by a tread-mill worked (squirrel-cage fashion) by.....a dog and a sheep. The dog, Bruce, hated the work;.....and when churning-day came ..... he would run away.....and hide.....so that he could not be found. At last he did it so much they were obliged to keep him shut up.....in some place or other. The old sheep perhaps learned from the dog the trick of.....hiding on churning-day, but she was quite as shrewd at it as he was.

The dog and the sheep churned.....on alternate days, thus: Bruce worked the churn Mondays, Wednesdays, and Fridays. Old sheepy worked the other ..... three days of the six. .....When her turn came, Old Sheepy could never be found without much hunting..... The.....mornings when she had nothing to do she would stay in the yard and feed on the grass near the house. So John was obliged to drive her into an enclosure.....and there confined her for ....the night previous to her churning-day, as it took too much time to hunt for her..... in the morning.

One Monday evening Bruce, having done his day's work.....was taking it easy . ...on the rug in the sitting-room where the farmer's family were having a quiet.....chat. At eight o'clock some one.....asked, "Has any one shut up Old Sheepy?"

No one knew. So off John ran to get the animal, but soon returned.....not able to find her.

"No matter," said Mary; "Bruce has had it easy to-day. .. ..We'll put him on to-morrow; for we never had.....more cream ready.....than now."

Bruce pricked up his ears as if to say, "Catch me churning Old Sheepy's butter!"

When bed-time came, ...Mary said, "I will not let old Bruce out to-night. I will put him in the wash-room."

Mary did not quite know Bruce, if she thought he was silly.....enough to be caught napping after hearing her first remark. ....,.. He had slipped out of the sitting-room somehow, and there was nothing to be done but to wait until morning and hunt him up.

At midnight a great noise was heard near the house. John got up and went out to see what was the matter. ..... He found that Bruce had hunted up Old Sheepy .....and had driven her into the enclosure to have her ready for her... ..... work the next.....morning.

EXERCISE III.

A MISUNDERSTANDING.

Two travellers were robbed in a wood, and were tied to trees and so left by the robbers. One of them in de-p--r, exlained:—

"Oh, I am undone!"

"Are you?" said the other joyfully; "then I wish you would ——— me."

TRUTH AND FICTION.

HOW TWO MEN MADE FIFTY RUN.

(*Some of the words to be inserted*:—Servants, Arabs, friends, travellers, adventures, surprise.)

A —— relating his —— to some ——, told them that he and his —— once —— fifty wild —— run. His —— stared in ——; but he told —— there was —— wonderful in it after all.

"For," said he, "we ——, and they —— after us."

HINTS.

Let the pupils read the first anecdote. See if any hands come up, or if any other signs appear showing that the joke is understood. If all is dull and dead, ask, "How many see a word that is a misprint?" Have the word changed to *exclaimed*. "How many can complete the word before it? How many can put the proper word in the blank?" Finally try to get from the brightest pupils what the man meant by exclaiming, "I am undone!" and what the other man thought he meant or pretended to.

Let the class go right at the next anecdote, fitting in the words as they go along. See if they will be thoughtful enough to discover that an *s* should be dropped from one of the names which are to be inserted.

EXERCISE VI.

(*After the pupils have the answer, let the application of each line) be explained.*

1. 'Tis black and brown, 'tis blue and grey,
'Tis changeful as an April day;
And yet, no matter what they say,
'Tis not without attraction.
It has a language all its own,
Though mortal never heard its tone;
It tells the sufferer's moan,
It tells of satisfaction.

2. Inclosed within a narrow cell,
It moves on hinge invisible,
Securely kept, and guarded well
From all approaching danger.
It often speaks, yet never talks;
It freely runs, but never walks;
And every passing thing remarks—
In fact, is quite a ranger.

3. It swims, and yet arms has it none;
And dances out of very fun
Without a leg to stand upon,
Or foot to follow after.
It has a brother—twin, they say—
And when cross-purposes they play,
They look the very oddest way;
To some they're cause for laughter.

4. As shining crystal it is bright,
'Tis dark or dull as winter night,
Its very nature, too, is light,
For all were dark without it.
It forms the poet's constant theme,
It haunts the lover in his dream,
And really paramount would seem,
So much is said about it.

HINTS.

Let this be read aloud in class as an ordinary reading lesson. It is to be hoped that the answer will dawn upon the pupils as they approach the end. If it does not, say: "We'll read it through again. Now reflect upon every line, and upon every new thought as you go along, and see if you do find what is referred to." As they read, you repeat slowly the salient lines in order to have them make a due impression. When the pupils begin to think they "see it," hold them in check. Train them to restrain their ardor; to wait until the evidence accumulates and makes the answer perfectly plain. The tendency of children is to yield to the first impulse. This is a good opportunity to teach them how a sensible person would wait before announcing his answer and test it by many, if not all, the lines. The answer is THE EYE. The application of some of the lines is quite ingenious.

THE KINDERGARTEN

Conversational Lecture by Miss Blow, of St. Louis, Mo.

A short time ago the Public School Board of Toronto acting in conjunction with the Minister of Education, sent Mr. Roden, school trustee, and Mr. J. L. Hughes, city inspector, to St. Louis, Mo., to inquire particularly into the working of the Kindergarten system in that city, with a view to its adoption in Toronto, if approved of. The report of the delegates (published in our columns) was so favorable that it was determined to invite one of the leading instructors of St. Louis to lay before the educational authorities and the teachers some of the features of the system, and thus ascertain whether it would be advisable, or not, to introduce it. An invitation was given to Miss Blow who has been mainly instrumental in establishing the kindergarten in St. Louis, and for the past fourteen years has been an active organizer of the system in that city, where it has reached the acme of success.

On the 27th ult. a crowded audience assembled in the public hall, normal school buildings, to hear Miss Blow's exposition of the aim, object, and principle of the kindergarten This talented lady was accompanied by Mrs. Hubbard, another teacher of the system in St. Louis. The school board was largely represented, and in the absence of the Hon. the Minister of Education, the chairman of that body, Mr. Galley, presided over the meeting, and briefly introduced the lecturer. Miss Blow, in an easy conversational style, explained the views of Froebel and Pestalozzi in laying the foundation of the system. Froebel's aim was to help people by making them help themselves, and he availed himself of all the best knowledge he could get. He went to Pestalozzi and saw his method, but found that it lacked definiteness, and he felt that if

education was not based on scientific principles it would do no good. To carry out this plan he devoted his whole life, the leading features of which were graphically described by Miss Blow. When the system was first introduced in St. Louis, the people approved of it but said it was impracticable in the public schools, but they did not know that all that was required was good average capacity and special training. The movement was commenced and carried on, one school after another being opened, until at the present time there are 6,000 pupils and 300 teachers in the kindergartens of that city. The system has grown in the hearts of the people. The great object of the method is to develop the powers of thinking, feeling, and acting which are inherent in children and which, if not developed in a right direction, are liable to be turned into a wrong course, to the detriment of society. Acting on this principle the children are taught in the pleasantest, and most judicious manner possible the construction of various articles bearing on the several trades, and in this respect Frœbel's idea is carried out, namely, that the practice of the muscles of the fingers at a very early age is essential to that delicacy of manipulation which is required in the finest branches of art. There is also a more refining —a spiritual—idea which pervades every branch of study in this interesting labor, which is that the child is taught by a process of induction to trace the hand of the Creator in all the works brought under his notice. This is done by leading his mind through a series of relationships from the material, such as wood, trees, growth, sun and so forth, to the immaterial—God, heaven, eternity. The most powerful aid the system possesses is music and singing. Children are extremely fond of singing, and the kindergarten songs are all arranged with a view to the exercise of the muscles, or the faculties of the mind so that by their aid every power and force is brought into action. Most of the work in the schools is carried on with singing and appropriate gesture, and both teachers and pupils become quite infatuated with the work ; school is a pleasure and the best of instruction is imparted in the most refining and Christianizing manner. To learn all about a thing the plan was to make a representation of it, and it was surprising to see the handiwork of some of the little ones ; and according as they advanced in age the work and songs were made more suitable and progressive.

At the conclusion of the highly interesting and instructive address the speaker was enthusiastically applauded.

Mrs. Hubbard then sang some of the kindergarten songs, with and without gesture to contrast the effect, and after a little instruction all the audience, together with a class of lady teachers, were singing songs and performing the expressive motions, with much merriment and satisfaction.

In reply to a question from Inspector Hughes, as to the influence of Kindergarten teaching on the lower classes and on sceptics, Miss Blow replied in elegant language to the effect that the nature of the teaching was such as to ennoble the mind and thus to lift up the child in the social scale ; while its influence in pointing to the works of the Almighty, in all the daily occupations of the school, developed the idea of an omnipotent ruling Power—the God of nature.

On the motion of Dr. G. Wright, seconded by Mr. Roden, a hearty vote of thanks was conveyed to Miss Blow and Mrs. Hubbard.

During the song exercises Mrs. Riches played the accompaniments.

After the meeting separated, the members of the School Board who attended at the lecture held an informal meeting to consider what steps might be taken to establish a kindergarten in connection with the public schools of Toronto.

Notes and News.

ONTARIO.

There are 32 teachers in training in Lanark County model school.

Teachers in music and drawing are to be employed for the schools of St. Thomas.

On dit that the head mastership of Streetsville high school will soon be vacant.

Many teachers desire to see the quarterly examinations in schools abolished, and half-yearly ones—in spring and autumn—substituted.

The Middlesex teachers have clubbed together to get copies of "Richardson's Temperance Lessons" for themselves, at a reduced rate.

We regret to hear that Mr. J. R. Miller, the hardworking and energetic inspector of schools, West Huron, is suffering from bad health. We hope to hear of his complete recovery before long.

Kingston collegiate institute, having been successful in its appeals, takes credit for having passed a higher per centage in the intermediate (17 out of 23) than any other high school or collegiate institute in Ontario.

Mr. Andrus, principal of Orono public schools has been re-engaged at an increased salary. Miss Reid is to succeed Miss Newsome.

In an important town in the County of Huron, a teacher holding a second class certificate was advertised for lately at the lavish salary of $250 a year ! Comment is needless.

Mr. H. L. Slack, late of Perth, has been appointed an assistant teacher in the Arnprior high school.

A majority of the recent matriculants in Trinity college have received their training at the collegiate institutes and high schools in consequence of the fact that the college council had arranged the curriculum to harmonize with the work done in the high schools.

Messrs. Wilson and Mayberry, assistant teachers, Stratford high school, have been re-engaged at the same salaries, $900 each ; and Mr. McLaughlin, English master, at $750 per annum. The Board have decided to solicit applications for the head mastership at a salary of $1,200 per annum.

A move in the right direction has been made by the St. Thomas Board of Education. They have increased the salaries of their public school teachers. Mr. Maxwell's has been raised $100 per annum, and all the female teachers are to receive $25 a year increase from the commencement of the new year.

At the late convention of the Kingston Teachers' Association it was resolved to procure two educational magazines for each school in connection with the association. One of these papers is to be the CANADA SCHOOL JOURNAL. It was also resolved to petition the Board of public school trustees to provide a standard dictionary as part of the furniture of each public school.

Oakville high school, under the head mastership of N. J. Wellwood, B.A., is reported in a flourishing condition. An addition of two rooms, at an outlay of about $3,000, has been made to the school buildings, the plans for the same having been designed by Mr. R. Little, the county inspector, and it is remarked that for capacity, comfort and convenience these rooms are not surpassed by anything of the sort in this province.

S. Phillips, B. A., has tendered his resignation as head master of Elora high school, as he has been appointed principal of the new collegiate institute at Portage la Prairie, Manitoba. Mr. Phillips has distinguished himself as a very successful teacher both in Whitby, where he was highly respected, and in Elora which he is about to leave. We are much pleased to hear of his promotion and wish him every success in his new field of labor.

At the North Perth teachers' association meeting recently, a resolution was passed to the effect, "that in the opinion of this association it is not advisable to make any change in the school law with a view to the introduction of the Bible as a text-book." An amendment recommending the making of the reading of the Bible compulsory, unless where objected to by the trustees, was put and lost by a small majority. A resolution was also passed approving of the "uniform promotion examinations." The opinion was that they were of great value to the schools.

The Kingston public schools are crowded and additional accommodation has been demanded. The recommendation of the local school Board to this end has been vetoed by the finance committee of the City Council. Indignation and wrath thereat is the prevalent feeling in the "lime-stone city." Dr. Fee, chairman of the Kingston School Board, having publicly opposed the requisition to the City Council for $8,000, was asked by a vote of 6 to 3, to resign his chairmanship. The question arises, who is now responsible for any evils that may result from overcrowding in the schools ?

The first session of the Normal Schools has only just been changed by authority of the Minister from September to February. This does not satisfy the Middlesex Teachers' Association. It recommends : 1, that the second Normal School term for the professional training of second-class certificates begin in August and end in December ; 2, that attendance at the Normal School on the part of first-class candidates be optional in the case of those who have attended one term at said school and have taught three years ; 3, that candidates for non-professional first-class certificates be permitted to appeal, as in the second-class and intermediate examinations.

The first thing that came before the London School Board at a late meeeting was a motion to forbid all corporal punishment. A letter was read from the Association of Teachers in the service of the School Board for London, who urged the Board "to modify the rules in the code of regulations bearing on the internal discipline of the schools, seeing that the rules imply a want of confidence in the teachers; that, since their introduction by the Board, the insubordination of London youth has rather increased than decreased; that the authority of the staff is gradually being undermined; that by them encouragement is given by lawless parents; and that, through their direct and indirect operation, much good that otherwise could be done is not done.'

At the late convention of Lanark County Teachers' Association, the president F. L. Michell, B.A., county inspector, condemned in befitting terms the "*pernicious* habit" of some teachers in underbidding one another in applications for schools. We have animadverted on this matter several times in the columns of the JOURNAL as tending to the degradation of the profession, and we hope teachers will, by some well-defined plan of action, take steps to put an end to a habit which is doing much injury to both individuals and the professional at large. It is bad enough when the "lowest tender" will ous tability, but when this lowest tender is undercut, the position is wretched indeed—especially for the unfortunate pupils of schools where such a practice is carried on. In the noble army of teachers "sappers and miners" are not needed.

The next high school entrance examination will be held on the 20th and 21st December, commencing at 9 a.m. each day. Intending candidates must send to the inspector notice of their intention to write not later than the 15th of December. The subject of examination are as follows:—Spelling—Fourth reader, to page 264, and spelling-book dictation. Arithmetic—Notation, fractions, proportion, and interest. Grammar—Forms and definitions, analysis and parsing. Composition—Changes of sentence construction, narration, letter-writing. Geography—Canada, Ontario, America, Europe, Asia, and Africa. Linear drawing—(in June 1883, and thereafter) from Walter Smith's primary manual. History—leading facts of English history. Reading—Pp. 1-264 of the Fourth Reader, but especially the sixteen lessons commencing on page——. The marks, tests, and per centages are the same as last July, but candidates must obtain half of the marks for analysis, including parsing.

Mr. A. F. Butler, the energetic and efficient county school inspector for Elgin county, in his report to the County Council last month, stated that out of the 130 teachers under his superintendence there are 70 second-class. Concerning the absence of first-class certificates he noticed that the salaries paid to teachers in the rural sections were altogether out of proportion to the expense of optaining such certificates and only one per cent. of the teachers of the province reach this standard. The report goes on to say that during the last two or three years the increase in the cost of acquiring all professional certificates, has been far in excess of the increase in salaries of teachers; indeed one of the greatest obstacles in the way of educational progress is the unwillingness of many school trustees to recognize this fact, that knowledge must find remuneration or seek it outside of the teacher's ranks. He says: "I will here venture the opinion that the present method of granting certificates is open to objection in its want of adaptation to the wants of the primary department in our graded schools, and in the great hardships it entails upon female teachers who have special talents for instructing primary classes and who desire to devote themselves for some years to this work. As it is, much labor and hundreds of dollars must be spent after a third class certificate is expired, in order to obtain a second certificate or a right to teach permanently, and this expense is mainly for a kind of knowledge very different from that required in the instruction of young children. The remedy for this would be a class of certificates, the requirements for which might be an extensive knowledge of object teaching, kindergarten work, elocution, mental arithmetic, science of common things, laws of health and life and especially natural aptness and fitness for the very important work of managing young children. These requirements should of course be possessed in addition to the common English branches, and the salary of such teachers should be as high as any paid in the public schools. In conclusion Mr. Butler referred to the usefulness of the County Teachers' Institute, and the active and hearty co-operation therein by Collegiate Institute, High Schools and County teachers. Also as to the County Model School, predicting great benefits from the three months session in increasing the thoroughness of the candidates and a more extended knowledge of the art of teaching."

"Any teacher is good enough for the primary classes." This idea is fast becoming obsolete and it will not be long until it is buried in oblivion. There is little art in teaching mature minds, but teaching "the young idea how to shoot" is a difficult as well as a "delightful task," and requires natural ability and professional skill. This is the opinion of J. C. McCabe, M.A., principal of the Ottawa Normal School who suggests that it might be well in schools to have teachers promoted downward. He thought the salaries ought to increase in inverse ratio with the classes, and for the lower class they ought to have teachers of the highest mental attainments.

The difficulty of dealing successfully with the current question of the Bible in schools has received a practical illustration at Orillia. The head master of the high school there, writing to his board, says:—"Complaints have been made that the school is not opened with prayer. As the school is mixed and of different denominations, I think it better to omit the opening with prayer than to introduce a denominational (Protestant) religious exercise, which might be offensive to some of the pupils or their parents. The same course is pursued in some other high schools; Barrie and St. Catharines are examples." The board, in considering this report, censured the high school master for discontinuing the prayers in the school without their sanction, and passed a resolution that they be restored. The chairman, in putting the motion, said "that in some section—in Mara for instance—the Catholics predominated, and those schools were not opened and closed with prayer. No prayers were prescribed in any schools where Catholics were in the majority, unless they were purely separate schools."

FATHER STAFFORD—SKETCH OF HIS CAREER.

The Rev. Michael Stafford, whose death took place recently at Lindsay, was born in Perth, Ontario. He received his classical education at St. Theresa College, near Montreal, and subsequently studied theology at Regiopolis College, Kingston. In 1856 Father Stafford was ordained priest by the late Bishop Phelan, of Kingston, and his first appointment after his ordination was to the professorship of classics in his alma mater. His connection with Regiopolis College in this capacity continued for four years, at the end of which period he was appointed the mission at Wolfe Island. It was at this period of his lifetime that the deceased commenced to take an active part in the Temperance movement, and the cause of the higher education of the masses. Mainly through his active instrumentality a district that was previously notorious for inebriety became entirely changed, and men whose condition was considered hopeless through addiction to drink, became models of sobriety and correct living. He established temperance societies in his charge and in other sections also, and his facile pen and eloquent tongue were always ready to be engaged in the cause of temperance. In behalf of the educational interests of his parish he built a large local school, which under his management and fostering care, proved a great success, and is still in a flourishing condition. Father Stafford remained three years at Wolfe Island, but brief as was the period of his stay he left his trace in the ameliorated moral, social, and mental condition of a grateful people, who deeply regretted his withdrawal from their midst. In 1863 he was transferred to Lindsay by Bishop Horan, and now entered upon an enlarged field of usefulness. In Lindsay his labors in the cause of temperance and education were not relaxed, but rather increased, and his devotion, earnestness, and eloquence in the cause of the social and moral elevation of the people were rewarded by unexampled success. He secured the erection of a large school house, and it was entirely through his efforts that one of the largest and most magnificent convents in Ontario, costing $60,000, was erected at Lindsay for the Ladies of Lorretto. He erected a superb residence in which he abode at the time of his death. The house was surrounded by beautifully kept grounds, in which the superior taste of the deceased was evident from its profusion of choice flowers, beautiful shade and ornamental as well as fruit trees, and his keen delight in his charming surroundings was not only the appreciation of a mind sensitively alive to the beautiful, but of an æsthetic taste which had been cultivated by study and rendered artistic by associations. The deceased ecclesiastic was simple and unostentatious in his tastes, distinguished for his charity and benevolence in all his relations in life, and in his regard for other denominations no man could be less swayed by prejudice or influenced by passion. For all religious divergences from the Church to which he belonged he entertained the largest charity and good will, and invariably viewed religious

quarrels and disputes with the greatest aversion. Father Stafford was greatly beloved by all who were favored by with acquaintance, irrespective of difference of belief, and doubtless his sudden death in the midst of a career of usefulness, and while yet in full possession of his mental and physical powers, will be universally regretted. To his own church the loss will be irreparable, and the cause of temperance and education has in his death lost a friend whose fluent, impressive speech and ready pen were wielded so often and so successfully in their service.

S. PERCY DAVIS, M.A.

Intelligence of the untimely death of the late Mr. S. P. Davis reached us as we were going to press with a previous number of the SCHOOL JOURNAL. The following biographical facts, which we were unable then to obtain, will have a sad interest for his many friends:

He was born November 20th, 1850, near Oshawa, where his parents, who were natives of Somerset, England, resided for a few years. When he was five years old the family purchased a farm at East Zorra, Oxford Co. where they still reside. Percy, who was the oldest son, spent his youthful days, as most of the farmers' sons do, actively employed in the farm during the summer and attending school in the winter. At the age of 17 he turned his attention more particularly to study, and attended the Woodstock high school for a year, walking a distance of four miles each way every day he attended. The head master G. Strauchon, M.A., certified of him at that time, "By untiring diligence and excellent abilities, he succeeded in placing himself in all his classes at the head of all his compeers." In January 1869 he went to the normal school, Toronto, where he was "a distinguished student of excellent ability, and had great aptitude for teaching." While in attendance there he won the highest praise from Mr. T. Kirkland, M.A., and Mr. J. L. Hughes, for his ability, aptitude for teaching, and gentlemanly deportment. During the years 1870 and 1871 Mr. Davis taught in the Fair Mount school, Cavan, Durham Co., and in 1871 he obtained a first-class A Provincial certificate without attending another term at the normal school. From Fair Mount he went to Whitby high school, where, under his loved and respected friend, the late S. Arthur Marling, M.A., he taught for a year and a half, and passed his matriculation examination in Toronto university, attaining a high place in the honor lists in classics, English history and French, and winning a scholarship for "general proficiency." His subsequent university career is thus testified to by W. D. Pearman, M.A., classical Tutor and Dean of Residence: "In his first year he gained the prizes in English and chemistry, and was placed in the first class in honors in Greek and Latin, chemistry, English and natural history, and in the second class in French, and again obtained a scholarship for 'general proficiency.' Since then he has gained the college prizes and the university scholarships in the natural sciences for the 2nd and 3rd years with the gold medal at the late examination for the degree of B.A." Of his conduct during these years Mr. Pearman says: "I have no hesitation in saying that it has been such as has reflected credit, not only on himself but upon the university to which he belongs." Dr. Daniel Wilson bore testimony to the high abilities displayed by Mr. Davis, and he left college carrying with him the best wishes of all with whom he had come in contact. Of the Literary Society he was an active member and a most useful officer, devoting himself with characteristic earnestness to the task of making it as beneficial as possible to himself and his fellow-students.

In September 1877, Mr. Davis was appointed classical and science master in Stratford high school, and shortly afterwards, married Miss Matilda Meharry of Fair Mount, Cavan, a lady whose estimable qualities have made for her many cordial friends and sincere sympathisers. He left Stratford for the position of House Master in Pickering college, carrying with him the esteem of the community, and deeply regretted by his pupils whose hearts he won by his noble example and kind, courteous manner. He succeeded J. E. Bryant, M.A., as principal of Pickering college, which position he filled with his usual ability and to the utmost satisfaction of the board of governors; and to the day of his premature decease he was adding to a circle of friends, who respected him for his scholarly accomplishments and loved him for his genial disposition.

With this record of his educational career we might appropriately be content, but we cannot help noticing those personal and christian qualities for which he was eminently distinguished. He united himself to the Methodist body at the age of 17. His parents intended him for the church and he was often solicited by clergymen to take holy orders, but he felt that it was not his vocation, and chose a profession for which his short but brilliant career showed that he was naturally and specially adapted. "I would not undertake any duty I could not faithfully and efficiently perform," were his words on one occasion, and it seems that this maxim was a guiding rule of his life, for in the several positions he held success attended every effort, though it, of course, entailed many weary hours and sleepless nights of study. He has passed to his rest, but it will be long before he is forgotten by those who enjoyed the pleasure of his friendship or listened to his guiding voice in the intricate paths of knowledge.

MANITOBA.

The Council of St. John's College has adopted plans for the erection of the new building for students in Arts and Theology. As a result of the advertisement for plans, nine sets were sent in some of them being very fine. Those submitted by Messrs. Barber, Kilpatrick and Barber were awarded the first prize, the second prize being given to those of Stewart Brothers. The plans include a very handsome residence for the Dean of the College attached to the main building. The wing and residence will be built next summer and will cost about $47,000. $22,000 has been subscribed. The Dean of Rupert's Land is now in England collecting for the College Building Fund.

The Rev. A. L. Parker, M. A., the new Fellow of St. John's College is doing excellent work. He has taken the lead in the formation of a Literary Society, which gives promise of being exceedingly useful.

The annual commemoration service was held on Nov. 1st in St. John's Cathedral, the clergy present being the metropolitan of Rupert's Land, Chancellor and Warden, Canon Omeara, M. A., Dean of the College; Archdeacon Pinkham, B. A.; Canon Matheson, B.D., Deputy Head Master of the College School; Rev. A. L. Parker, M.A., fellow of the College, and the Rev. H. F. Leslie, B.A., one of the Masters of the College School. The Metropolitan preached a very able and interesting sermon from Hebrews XII, 1 and 2, in the course of which the history and prospects of the College were fully dwelt upon. At the close of the service an adjournment was made to the school room where the prizes won at the Midsummer examinations by the students of the College and the pupils of the College school were distributed.

The Literary Society of Manitoba College is in a flourishing condition. Arrangements have recently been made for the following course of Lectures under the Auspices of the Society, in aid of the Library and Reading Room:—

Rev. Prof. Bryce, M.A., L.L.B.—In Knox Hall, Nov. 17. Subject—"Rome as we saw it in 1882," with oxy-calcium light illustrations
Rev. J. B. Silcox—In Selkirk Hall, Dec. 8. Subject—"Grip and Grit"
Alex. McArthur, Esq.—In Knox Hall, Jan. 12. Subject—"English Biography."
Rev. D. M. Gordon, B.D.—In Selkirk Hall, Feb. 10. Subject—"Livingstone"
Rev. C. B. Pitblado—In Knox Hall, March 10. Subject—"Thomas Chalmers."

Archdeacon Pinkham, Superintendent of Education, has been sub-examiner, to conduct the civil service examinations in Manitoba. The examinations commenced on 7th November and closed on the 11th. There were nineteen candidates.

The Rev. Professor Hart, M.A., B.D., of Manitoba College, has returned from his trip to the eastern Provinces, and has resumed his duties after his well-earned rest.

Mr. J. H. Stewart, late inspector of the Protestant public schools of the city of Winnipeg, has been appointed a member of the Board of Education for the Province.

Six additional teachers have recently been added to the staff of teachers for the Protestant public schools of the city of Winnipeg and as many more will be required within six months. The total number of pupils enrolled for the month of October was 1258, several new rooms have since been opened and the rest of the school accommodation provided this summer will soon be ready for use.

E. L. Byington, M.A., Principal of the Normal school, and Mr. J. Fawcett, B.A., who is in charge of the Collegiate Department of the Winnipeg schools, are both doing well.

The city teachers have lately memorialized the Board of School Trustees for an increase of salary. At a recent meeting when the matter came up for consideration, Mr. Linton, Chairman of the School Management Committee said the Board was likely to lose the services of some of the best teachers unless the salaries were re-adjusted. The School Management Committee was asked to report at the next meeting.

NOVA SCOTIA.

The second annual meeting of the teachers' association for the counties of Antigonish and Guysboro (district No. 4) was held at Antigonish on the 12th and 13th of October. A large number of members were in attendance. Through the kindness of the Faculty of St. Francis Xavier's college, the fine mathematical hall of that institution was placed at the disposal of the association. The zealous inspector of schools, R. McDonald Esq., presided at the various sessions. Dr. Allison, superintendent of education, was also in attendance through nearly all the proceedings. After organization and the transaction of necessary routine business, the regular proceedings opened with a paper on "Irregular Attendance" by Mr. Williams. The arguments of the essay, which was studied with great clearness, was in favor of compulsory attendance as the only effective remedy for the evil under discussion. Mr. William's views were sustained by Mr. D. M. Chisholm and controverted by Messrs McIsaac, Cameron and McEachen. At a subsequent stage of the proceedings a resolution was passed by a majority of thirteen, disapproving of the compulsory principle. (At the previous annual meeting of the association a resolution to the contrary effect was carried by a majority of four.) The next paper was a highly practical one on "Reading" by Miss M. C. Thompson. The views enumerated led to the suggestions and commendatory remarks from Messrs McIsaac, Cameron, Williams Wall, O'Brien, McGillivray, and McEachen. Then came a very thoughtful and elaborate essay on "Education" by Mr. McIsaac. Various theories of popular instruction, conflicting views as to the true relation of the state to education, the scope of parental responsibility and effort, and kindred questions were discussed at length. The superintendent of education while not disposed to view all things just as Mr. McIsaac did, accorded the latter high praise for its literary merit. The exercises of the second day began with a paper by Mr. Cameron on "Teaching—what can be done to make it a profession?" This paper attracted the earnest attention of the association by reason both of its merit and theme. The tendency of lower salaries to impair the efficiency of the schools, and to make a true profession of teaching, was strongly dwelt upon. Messrs Burke, McIsaac, McGillivray and others discussed several of the points raised by the essayist. Mr. A. J. McEachern followed with a brief criticism on the course of study in common schools. He emphasized possible dangers connected with compulsory programmes. He agreed, however, that the provisions of the course were in themselves excellent, and if simply recommended to teachers much good might result from their use. The superintendent of education was obliged at this point of the proceedings to take leave of the association. In reply to a vote of thanks, he briefly addressed the teachers present. The Antigonish *Aurora* gives the following report of his remarks:—He was glad to meet the teachers of this district, and to hear them express their views frankly and fearlessly, even when opposed to his own. The more he saw of the teachers of the province, the more hopeful he became of its future. The services of teachers, he knew, were not sufficiently appreciated. A comparison of the work done in academies and colleges (where progress is not impeded by irregular attendance and lack of apparatus) with that done in our common schools should not make the common school teacher depreciate his calling. We should not apply to our educational system tests which are not applied to other systems. As it would be wrong to assert that christianity is a failure because moral evil exists, so it would be folly to depreciate our common schools because some ignorance still exists. No person who compares our present educational status with what it was a quarter of a century ago can deny that much progress has been made. He reviewed the papers and discussions to which he had listened, and complimented the members of the association on their ability, frankness and moderate tone. He spoke at some length regarding "The course of Studies," and explained that it was not contemplated to make its adoption compulsory. As some course of studies was essential to every school, the council of public instruction thought they were aiding every teacher in his work by furnishing him with a course which it would be his own interest to adopt as far as the circumstances under which he worked would permit. The remaining exercises consisted of papers on "Grammar" and "Qualifications of Teachers." The former by Mr. W. F. Kiely was an admirable statement of the logical method of teaching the principles of language. The latter by Miss Jane Thompson dealt with a different subject in an equally thoughtful and suggestive manner. Interesting discussions followed the reading of both. The election of officers for the ensuing year was then proceeded with. The following appointments were unanimously made:—Vice-president, Mr. McIsaac; sec.-treas., Mr. W. F. Kiely; executive committee, Messrs. Williams, Burke, Cameron, McLean, O'Brine, Keating, Miss Dawson and Miss Thompson. Before adjournment the association passed a hearty vote of thanks to inspector McDonald for the skill and warmth with which he had guided the business of the association.

The convocation of Dalhousie college formally opening the current winter session was held on the 31st of October in the legislative assembly room. A large and brilliant audience was in attendance, including the Lieutenant-Govenor, the Mayor, Sir Wm. Young, Judge Johnston, the inspector of education, U. S. Fielding, M.P.P., J. W. Langley. M.P.P., many of the city clergy, Rev. D. Bennett of St. John, N.B., and several prominent merchants and lawyers. After a few opening remarks from Rev. Principal Ross in which he alluded to the founding of a professorship in English literature by Geo. Monro, Esq., and the appointment of Dr. Schurman to the chair thus created. Professor McDonald as secretary of the senate read the following list of winners of exhibitions and bursaries:—

(1.) Senior exhibitions. Tenetable for two years (third and fourth years of college course), worth $200 per annum. 1. J. P. McLeod. 2. Daniel Murray. 3. H. S. Adams. 4. Frank Jones. 5. Unawarded.

The five exhibitions, each worth $200 per annum for two years, to be awarded to the five highest candidates in competition (open to all competitors) were won as follows:—

1.—E. McKay, Mt. Dalhousie, (Pict. Acad.) 2.—C. N. Cahan, Yarmouth. 3.—John Calder, Cape Breton. (Pict. Acad.) 4.—N. F. McKay, W. River, (Pict. Acad.) 5. A. Robinson, Sussex, N.B. (Pict. Acad.)

The Bursaries, each worth $150 per annum for two years, were won in the various districts as follows:—

Dist. I.—Halifax, Yarmouth, Pictou, Colchester:—1.—E. M. McDonald, Pictou Academy. 2.—Dugald Stewart, Halifax, Pictou Academy. 3.—A. W. Lewis, Truro, Normal School. 4.—D. H. McKenzie, Scotsburn, Pictou Academy.

Dist. II.—Remaining 10 counties of Nova Scotia proper:—1. S. M. Morton, Liverpool Academy. 2.—Robie L. Reid, Kentville, Pictou Academy.

Dist. III.—Cape Breton counties, not awarded.

Dist.—IV.—Prince Edward Island:—1.—A. Nicholson, Prince of Wales Col. 2.—V. E. Coffin, do.

Dist. V.—New Brunswick:—1.—A. W. Macrac, St. John N. B.

The inaugural address was delivered by Dr. Schurman, Monro, professor of English literature: Subject, "The Shakesperian type of manhood." The address was characterized by subtle discrimination of thought and careful analysis of character. Though cast in a scholarly mould, it was sufficiently popular to engage and retain the close attention of the large audience present. In response to an invitation from principal Ross, Rev. Dr. Bennett of St. John, N.B., offered some words of wise counsel to the students and spoke in appreciative terms of Dr. Schurman's address.

The annual session of the provincial normal school was formally opened with appropriate exercises on the 8th of November. One hundred and seven students were in attendance. The opening address was delivered by Dr. J. B. Hall, this subject was "the Moral Element in Education," which was treated with great appropriateness of thought and felicity of diction. Several brief addresses followed. A fine audience was present.

TEACHING BY LAUGHTER.

Most persons regard laughter, and the perception of the ridiculous, as pleasant companions, with whom we can be merry round the fire on winter nights; but few are they who rank these among the world's great reformers, and who not only learn to laugh, but also laugh to learn. The man who laughs wisely can instruct us; the fountains of this man's sympathies are easily moved; his mind is not only readily awakened by the ludicrous, but the influence of kindness and the impulses of love also readily stir his spirit; in a word, he is deeply sympathetic with all the tones and utterances of nature. And thus it is that error is best confronted by a good-humoured face and smiling countenance. Angry sarcasms, biting, rankling words of venom, can effect but little for the world; on the contrary, quiet innuendo and cheerful laughter have done, and will do much. We would have all who wish to be teachers of their fellows, to make men laugh in love not in terror; to fix their eyes on the bright ovals and orderly ways of nature, not on the sharp angles and crude crotchets of conventional men. For, although few men are capable of expressing the ludicrous or uttering the sharp periods of brilliant wit, who is insensible to the ludicrous when presented? The ludicrous to the eye or to the mind, the unwonted circumstance in strange association? How fond we all are of the anecdote bringing to light some incongruity of character, some eccentricity of habit or manners! We enjoy those biographies which abound with such things. This is the region of mental and moral incongruities. All incongruity is ridiculous, but it is in these that the ludicrous becomes artistic and humane; thus it is that the ludicrous pierces the sophisms of books and the sophisms of life, for our mental and moral incongruities are to be sought for there; sometimes incongruity has been employed to demolish an argument, sometimes to exhibit a character.—*Leisure Hour.*

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

PRINCE EDWARD CO.—The semi-annual convention of the teachers of Prince Edward Co. held Oct. 27th and 28th, 1882, was called to order by the president and opened by prayer. The minutes of last session read and adopted. Copies of the "New Regulations" being distributed among the teachers, some practical hints were given by the inspector, G. D. Platt, B.A., as to the working of the same. The subject of music was next introduced by H. M. Faul, who illustrated his method on the blackboard, in a clear and satisfactory manner. The subject of "Advanced Arithmetic" was next brought forward by S. E. Mastin, who dwelt chiefly upon the contracted method of multiplication of numbers. Dr, McLellan, being introduced to the convention, took up the subject "Good questioning and bad." A short discussion next followed on our present series of school readers, which was introduced by W. J. Osborne. The feeling of the convention being unanimous in condemning the books. Dr. McLellan next took up the subject of "Elementary Language Lessons," giving some very useful and practical hints as to the teaching of the same. In the evening the Dr. delivered a lecture in the town hall on the subject "Ten Years Educational Progress" to a crowded house, which was highly instructive. At the close a vote of thanks was tendered the Dr. moved by Rev. Mr. German seconded by Rev. Mr. Coulthard. The second day's proceedings were opened by Dr. McLellan who introduced the subject "Moral Culture in Schools" in which the Dr. expressed himself as believing that the teachers' profession was second to none, and in their hands were placed the great moral training of the rising generation. He believed they would do all in their power to raise the standard. The subject of "Physical Education" was next discussed by R. W. Murray giving a chapter from his own diary "how he had lost his health, how regained." He believed it to be as much the duty of the teacher to look after the pupils physical health as his intellectual attainments. Dr. McLellan next introduced the subject "Memory as affected by Cram," noticing only a few of the thoughts in connection with the subject. Primary ideas:—Time and place, cause and effect, similarity and control, association of ideas. Secondary ideas:—Vivacity of expression (the teacher should be vivacious), repetition, the state of bodily power, the power of concentration. The election of officers was proceeded with immediately after the opening of the afternoon session, which resulted as follows: President, R. W. Murray; 1st vice, J. Kenney; 2nd vice, Miss Fanny Gillespie; secretary, R. B. Mastin; treasurer, G. D. Platt, B.A.; executive committee, R. Dobson, B.A., W. Benson, F. Goodman, Miss Hicks, Miss J. Gillespie. Dr. McLellan next presented the subject "The Teacher and his Work." R. Dobson, B.A. next gave a short discourse on the theory of reading. A vote of thanks was moved by R. Dobson, seconded by J. Kenney, and presented to Dr. McLellan for his able and instructive addresses during the convention. After the adoption of the following resolution the convention was brought to a close:—*Resolved*:—We the teachers of the county of Prince Epward, desire to place on record our deep sense of the loss sustained to the cause of education, in the death of the Rev. Dr. Ryerson, who for nearly half a century guided the educational affairs of this province, and to whose wise conception and great administrative ability we owe our present excellent, comprehensive, and unequalled system of national education.—R. B. MASTIN, Sec.

NORFOLK CO.—The above association met at the model school, Simcoe on Friday and Saturday Nov. 3rd and 4th. In the absence of the president the Rev. Geo. Grant, B.A., occupied the chair. Mr. S. C. Woodworth opened the programme with a comprehensive discourse on arithmetic for junior classes. G. W. Ross, Esq., M.P., followed in an eloquent appeal on behalf of school routine. This subject he handled in a masterly manner making a fitting prelude for the teachers' minds before engaging their attention with more theoretical subjects. "Make it easy to do right and hard to do wrong," (Gladstone) should be the maxim of all teachers. In the afternoon grammar as an intellectual attraction for young minds was treated of in an essay by Mr. J. G. House. If all intelligent people would listen to Mr. Ross in his clear elucidation of the so often met with impediments to good reading, each one would be convinced that attention to the dictates of common sense would render good reading universal. Mr. Stickney entertained his hearers with a sketch of instruction as imparted by ocular demonstration to the deaf and dumb. Mr. W. W. Pegg followed with a sketch of work done in an institution for deaf mutes at Chatanqua. The evening session was a time for deep reflection when the subjects, of moral influence in our schools and the intellectual forces, were brought up. The Rev. A. E. Russ, M.A. prefaced Mr. Ross, strongly advocating a further extension of moral influence in Canadian schools; this gentleman also urged that university education be opened to women. Mr. Ross treated his subject under the three fold division of discrimination, retentiveness, constructiveness, and closed his remarks with a vivid picture of the influence for good or for evil that the teacher has on his scholars. *Second Day.* Dr. Wadsworth in his usual happy strain invited the teachers present to give their opinion regarding the scheme just began by the association, of uniform promotion examination which in the course of his labours as inspector he had found to be generally satisfactory, and a spirited discussion ensued with regard to the benefits derived from the time best fitted for holding, and questions set in, the papers. Mr. Ross then followed with his technically called "Dialogue for Teachers" and five of the royal commands were given with their individual application. Mr. Ross then withdrew carrying away with him the best wishes and highest appreciation of his services so happily rendered during his short visit. Intellectual work of the highest order now formed the next part of the programme, this intricate work was intrusted to W. W. Rutherford, Esq., B.A. of Port Rowar, whose mathematical skill was exhibited in a high degree on this occasion; taking algebra in its ever varied peculiarities for the space of an hour the gentleman kept his promiscuous hearers in a state of the utmost attention. The proceedings closed in the afternoon afrer discussions on the pros and cons of corporal punishment were pretty thoroughly ventilated. The following were declared officers of the association:—Messrs. Wadsworth, Grant, Woodworth, Pegg, Smith and E. H. Carpenter, (Sec.)

NORTH YORK.—This association held its regular half-yearly meeting at the Newmarket model school, on Friday and Saturday, Oct. 13th and 14th. After routine, Miss Jessie Birnie illustrated her "Method of Teaching Second Class Pupils to read Poetry." No criticism. Mr. Geo. Rose next introduced his subject of "Teaching Simple Rules of Arithmetic by using the Calculator." Friendly criticism followed freely by Messrs. Brodie, McMahn, Moore, Bannie, and the president. The principle point of discussion was, whether it was proper for the teacher to repeat the answer given by the pupil. Finally, with slight opposition, a motion was put and carried condemming the practice. "How to obtain regular attendance at school," was next taken up by Mr. Jewitt. Discussion by the president (Mr. Fortheringham), Messrs. Rannie, Terry, McMahn and Rose. At the afternoon session, Mr. W. A. J. Martin took up analysis and parsing, V. Book, "Richard's Despair," Act III., Scene 2, taking the convention as a class. The committee on uniform promotion examinations then reported. On motion, the report was taken up clause by clause and adopted. J. E. Dickson, B.A., of the Newmarket high school, then brought forward his subject, viz: "The use of Globes in the School room." Mr. Dickson very profitably occupied the time until five o'clock. On Friday evening, Thos. Kirkland, M.A., of the Toronto model school, delivered a very interesting and instructive lecture, entitled: "Succession of life upon the Earth," illustrated with the stereopticon. As the lecture lasted until ten o'clock, no further entertainment was provided. On Saturday morning Mr. Fotheringham, inspector of the northern division, took up the subject of "Drawing," after which Prof. Kirkland introduced the subject of "Combustion." It was decided that the only periodical provided by the association for 1883 be the CANADA SCHOOL JOURNAL. In arranging the programme for next session, a new feature was introduced, viz: The appointment of critics for each subject.

NORTHUMBERLAND.—Held in the collegiate institute buildings, Cobourg, on Thursday and Friday, 5th and 6th, October. The exercises were opened punctually at 10 a.m., the president, Mr. G. Dowler in the chair. The association proceeded at once to discuss whether it would be in the interest of the teaching profession in this county, to continue the present system of semi-annual meetings, or to substitute therefore yearly meetings and monthly (or quarterly) township conventions: The question was finally laid over for future consideration. The "New P.S. Programme" was severly criticzed by Mr. D. Robertson whose essay on the subject elecited frequent applause. He was requested to allow his essay to be published. School hygiene was discussed in a thoroughly practical manner by Mr. H. M. Hicks, B.A., of Colborne. Mr. Geo. Kirk next illustrated, in a very interesting manner, his method of presenting "Fourth Class Arithmetic." Mr. John McColl then addressed the association on "Dull pupils, etc." In the evening J. L. Hughes, I.P.S., Toronto, delivered an admirable lecture on the "Kindergarten." *Friday.* "Literature for third and fourth Classes" was introduced by Mr. D. E. Stephenson. W. S. Ellis, B. Sc., next gave numerous valuable "Short methods" in arithmetic. An excellent paper on "History" by R. Ferguson, B.A., was, in the absence of that gentleman, read by Mr. Odlum, B.A. A vote of thanks was tendered each and Mr. Ferguson was requested to allow his essay to be published. The sum of $30 was voted to aid the teachers in procuring the Toronto *educational journals* at reduced cost. The following were elected officers for the ensuing year:—W. S. Ellis, B.A., B. Sc., president; H. M. Hicks, B.A., vice-president; D. E. Stephenson, sec-treasurer; committee of management, Messrs McHenry, M.A., Dowler, Ash, Robertson, and Scarlett, I.P.S. In accordance with a notice of motion given by Mr. J. W. Black at the previous meeting in Brighton it was *Resolved*:—That any person convicted of supplanting another teacher, or of aiding, abetting, or in any way countenancing the same, shall be declared in-

eligible for membership in this association. The following notice of motion was given by Mr. Geo. Kirk, H.M., model school, Cobourg :—I hereby give notice that I will, at the next annual meeting, move the reconsideration of the resolution passed at the last meeting of the association, recommending the authorization and adoption of Gage's New Series of Readers. "Mood" in English grammer was very ably treated by Mr. D. C. McHenry, M.A., principal of the coll. institute, Cobourg. As Mr. McHenry is a gentleman of advanced ideas and high literary attainments, his rendering of this subject was listened to with deep interest. He was requested to allow his address to be published in the *Educational*. One of the most interesting features of the programme was a discussion on "The Relation of Trustees to the Progress of Schools," introduced by Mr. Andrew Black, chairman of the Cobourg high school board. The speaker believed that financial embarrassments was a serious injury to the prosperity of any school. Teachers should be well paid and paid *promptly*. He thought they should be paid at least *quarterly*—half-yearly was not often enough. Mr. C. C. Field, chairman of the P. S. Board, Cobourg, supported Mr. Black's views. He thought the visiting of schools an important duty of trustees. They should secure the best teachers available for the work required, pay them well, and *retain* them, as frequent change of teachers was extremely injurious to the prosperity of our schools. The Rev. H. Pedley favored the association with an eloquent address on "The Teacher's true aim."

LANARK CO.—Meeting was held in the Perth coll. institute on the 3rd and 4th ult. It is only justice to say that the more than ordinary success of the meeting was owing to the presence of Dr. McLellan, who is a host in himself, which he fully demonstrated by kindly giving no less than *four* lectures, three before the association, and one in the town hall. During the sessions of the association, the president, Mr. Michell, I P.S., occupied the chair; Mr. H. S. Robertson acted as secretary, and Mr. T. O. Steele as reporter for the press. After the routine business had been disposed of, the president gave an able and spirited address on matters connected with the association. He presented suggestions from a paper read by Mr. Ross, M.P., before the Ontario teachers' association at the last meeting, on "How to make Teachers' Associations useful." He regretted the small salaries paid to teachers, generally, but thought the teachers themselves were very much to blame in the matter, by practising the *pernicious* habit of underbidding each other, and by not manifesting a sufficient interest in their work He impressed upon the teachers the fact, that if they only did their duty faithfully, they would eventually reap the reward. Mr. James read an excellent and practical paper on "Teaching Geography." Mr. T. O. Steele suggested that the Minister of Education be requested to insist upon all future editions of school geographies containing full pronouncing vocabularies of proper names, which suggestion was embodied in a resolution and adopted by the association. Mr. Michell followed by giving a thorough lesson on "How to teach elementary Arithmetic." He spoke of the necessity of understanding the science as the art of arithmetic, and illustrated the best methods of teaching and explaining notation, numeration, and simple rules to young children so that they could tell the *whys* and *wherefores* of the various operations. The next subject taken up was a "Model Lesson on English Literature," by T. O. Steele, principal of the Perth model school, given to a class of his pupils. Mr. Erratt also gave a "Model Lesson" on the "Introduction of the parts of speech," which commended itself for its clearness and appropriateness. Mr. McCarter read a brief but comprehensive paper on "The Teacher's Voice." He gave illustrations of a noisy and a quiet teacher, and said that the difference between an orderly and a disorderly school arose chiefly from the difference in the use of the teacher's tongue. Dr. McLellan gave a lecture on "The Art of Questioning." On Friday evening Dr. McLellan gave a public lecture in the town hall on "Teachers and parents in relation to the School." The Mayor occupied the chair, and the hall was well filled with an appreciative audience. The entertainment was enlivened by instrumental and vocal music by the Misses Walker, McLellan and Steadman, whose performances eliticed well merited applause. The first paper on Saturday was by Mr. Burwash on the manner of introducing a study to a class, and gave his method of introducing the subjects of reading, geography, French and natural science. The paper was an excellent one and elicited much profitable discussion. The next paper by Mr. McGregor entitled "The Model Teacher," was carefully and ably written. Mr. Rothwell having kindly given up his paper "Solution of Equations" that Dr. McLellan might give a lecture on "Algebraic Symmetry," the Dr. took the floor, and delighted the association with a lucid exemplification of the subject of "Symmetry" and its application to factoring. Mr. N. Robertson gave an excellent paper in "Punctuation," illustrated by numerous examples of the proper and improper uses of the comma and semicolon, The last subject dealt with was, "Reading in public schools and how to improve it," by Dr. McLellan. He considered the word and phonic systems combined the best in the first stages of learning to read. Reading lessons are too often only used as a means of acquiring knowledge, and not properly as an exercise in reading. The association indeed owes the Dr. a debt of gratitude which can best be repaid by the teachers carrying into practice the noble precepts which he inculcated.

REVIEWS.

THE LONGFELLOW CALENDAR FOR 1883.—This Calendar has many features which commend it to special popular favor. It has a portrait, which is pronounced excellent by those who knew Mr. Longfellow most intimately. On one side of the medallion containing it is a view of Mr. Longfellow's Cambridge Home, and on the other the Belfry of Bruges. Below, on the right, is a picture of Evangeline standing on her father's vine-clad porch; on the left, a picture of Priscilla in the snow carrying food to the poor. A band of golden daisies, with panels bearing the names of Mr. Longfellow's most famous works, incloses the whole. The selections from Mr. Longfellow's writings for each day of the year are carefully chosen, and form a series of passages of great beauty and excellence. The Calendar is printed in twenty colors, so blended and distributed as to produce a very rich and tasteful effect. The multitude of Mr. Longfellow's readers will value this Calendar as a daily reminder of one whom they prize so highly, and of whom this is so beautiful a souvenir. The price is one dollar, and it is published by *Houghton, Mifflin & Co., Boston.*

A PRACTICAL INTRODUCTION TO LATIN PROSE COMPOSITION by THOMAS KERCHEVER ARNOLD, M.A.; edited and revised by GEORGE GRANVILLE BRADLEY, M.A., *London, Rivingtons, 1881.* The fame of Mr. Bradley as one of the most eminent of the rising classical scholars of England has already become familiar to Canadian classical teachers. He was formerly master of Marlborough College, Oxford, and now fills the position of Master of University College, in the same venerable and famous home of classical learning. He has for years been the most popular teacher of Latin prose ln England, and he has embodied in what he modestly called a revised edition of Arnold's well-known book, the results at once of ripe scholarship and of long tutorial experience. The great defect of Arnold's book was want of continuity in the exercises and of variety in the applications of the idiomatic construction. These defects have been removed in the present edition, the exercises for which have been largely re-written. The order of topics has been changed and Mr. Bradley's remarks on this aspect of the work are highly suggestive as to the best methods for teachers of Latin to pursue. They are calculated to raise doubts in the mind as to whether the diluted and synthetical "first Latin books" now in vogue are as effective for imparting an intelligent idea of the language as the old-fashioned plan of putting the beginner at once at the work of translating easy text. As Mr. Bradley himself says (p. 41) speaking of the vocabularies prefixed to the various exercises: "The learner cannot be on his guard too soon to lay aside, as far as possible, the use of vocabularies and similar aids, and trust to his own knowledge as gained from reading Latin." The new grammatical introduction will add greatly to the value of the book as will also the general vocabulary and indexes at the end. It is needless to say that in point of typography it is characterized by the general excellence which characterizes all Rivingtons' books.

MAGAZINES.

In the December number of THE ATLANTIC MONTHLY two serial stories: "Two on a Tower," by Thomas Hardy; and "The House of a Merchant Prince," by William Henry Bishop, come to an end. The author of the former is an Englishman, and of the latter an American; the former has a tragic *dénouement*, in the latter the lovers wed and live happily ever after. The plot of "Two on a Tower" is highly improbable, as far as the external circumstances in which it is clothed are concerned; but, in its essence, it is thoroughly real. The consequence to Lady Constantine of disregarding Shakespeare's advice: "Let still the woman take an elder than herself," are worked out with great fidelity to nature, and the sad scene at the close is treated with sound judgment. "The House of a Merchant Prince" may be briefly characterized as a capital society novel. Very interesting from many points of view is "The Ancestral Footstep," an unfinished but concluded tale found among the papers of Nathaniel Hawthorne, and now edited by George Parsons Lathrop, his son-in-law, the first part of which is published in this number. The plot seems to have been in its main features fully decided upon, and many of the scenes are elaborated. Other parts are at all stages of advancement: in fact the fragment exhibits a novel in course of construction. The usual *mélange* of interesting and valuable articles fills out the number.

Harper's YOUNG PEOPLE for the four weeks of November contains the usual uumber of good things in the shape of both letter press and illustrations. The fine, old story of "The Mulatto of Murillo" is one which can be read scores of times and always with keener appreciation. "Waiting," picture and verses, is a gem of the purest water. The picture of "Moses among the bulrushes" is in the best style of Harper's art, which is second to no other.

The most striking article in the NORTH AMERICAN REVIEW for November is a symposium on the conditions of success in the histrionic art, contributed to by such theatrical stars as Lawrence Barrett, Joseph Jefferson, John McCulloch Madame Modjeska, and Maggie Mitchell. It is curious but not surprising to note the unanimity with which they insist independently on hard study as the principal condition after the possession of the requisite talent. Readers of Macready's "Reminiscences" will remember that he constantly believed his great success on the stage to be due to his persistent study and not in any important sense to his ability; genius he did not lay any claim to. It is quite possible that Macready may have had more genius than many who believe they have it in abundance, but the lesson of his life is the same as that of *Review* Symposium—that without hard labor success cannot be hoped for with any amount of ability in any sphere, and that with it the toiler frequently accomplishes the most astonishing results.

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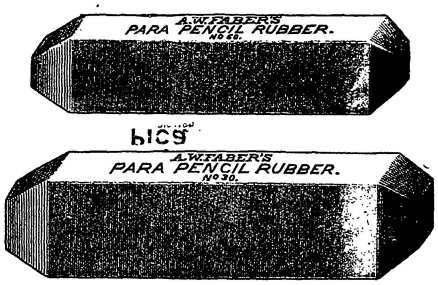

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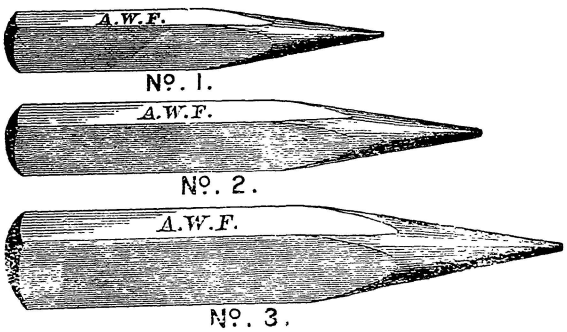

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